

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. patent No. 5,462,120

Inventor: Michel Gondouin

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS  
AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED  
MULTIPLE DRAINHOLES

Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

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REVISED AMENDMENT C AND REQUEST FOR AN INTERFERENCE

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I. AMENDMENT

For the purposes of provoking an interference with U.S. Patent Nos. 5,520,252; 5,322,127; and 5,787,987 please amend the above-identified application as follows:

IN THE ORIGINAL APPLICATION

Pursuant to the Decision of this Office dated October 8, 1999, granting Applicant's Petition for the original filing date, please cancel pages 42-44 of application Serial No. 814,585, the original application leading to the '120 patent.

FILING DATE

Also pursuant to the Decision of this Office dated October 8, 1999, granting Applicant's Petition for the original filing date, please amend the filing date from "January 4, 1993" to -- December 30, 1991--.

IN THE SPECIFICATION

Please amend the specification as follows:

Col. 3, lines 44-47, delete the paragraph "FIG. 3 is a vertical cross section of a special casing joint equipped with a drillable packer and retrievable whipstock for drilling and completion of the side-tracked hole of Case 3.";

Col. 4, lines 4-7, delete the paragraph "FIG. 6 is a schematic vertical cross section of a well and two drainholes, showing the various fluid levels in the reservoir.";

Replace the paragraph beginning at column 7, line 26, with the following:

Case 3 includes a special casing joint equipped with a drillable packer and retrievable whipstock for drilling and completion of a side-tracked hole. In Case 3, a vertical well is drilled, with its lower 50 ft deviated at the angle required to kick-off a horizontal drainhole and oriented in the direction selected for the

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drainholes. A special casing string is made-up, run-in and cemented by known techniques into the vertical and deviated portions of the hole. It consists of a shoe, a float collar and a special casing joint, see FIGS. 3a-3c, [(FIG. 3)] located at a depth slightly above that of the start of the hole deviation. This casing joint presents an elliptical window machined into the casing with a downward orientation of a few degrees from the vertical. [The] As previously shown in Fig. 1, the window (1) is again plugged off with a drillable plate (2) made, for instance, of a soft metal and shaped to generally conform with the casing surfaces. The plug is firmly attached to the casing by means of drillable fasteners [(29)]. Its orientation is also indicated by a vertical drillable key or grove (30) in the casing joint inner surface at or near its lower end.

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Replace the paragraph beginning at column 8, line 21, with the following:

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After the cement has set and the cementing string has been pulled out, the outer saw-tooth groves [(38)] of the whipstock are latched into an overshot tool equipped with a milling edge to drill out the elliptical collar (35) and the whipstock is pulled out. The supporting whipstock packer (31) is also drilled out and pulled out with the overshot milling tool, which also is equipped at its lower end with a suitable packer-latching device. These operations leave full openings in both the deviated casing and the side-tracked intermediate liner. both of them provide a relatively large deviated casing and a slightly smaller liner to be used as the respective starting points of two drainholes, in the same way as in Case 2, but the drainhole diameters and that of their respective liners may be greater than that of Cases 1 or 2.

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Replace the paragraph beginning at column 11, line 36 with the following:

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In under-pressured reservoirs containing low GOR oil, reservoir energy may be insufficient to convey the production stream up to a pump or gas lift valve located above the kick-off points of the drainholes. The difference in elevation between such a pump and the fluids entry points in the horizontal part of the drainholes is greater than the drainholes radius of curvature, which may be up to 500 ft. In addition, there are significant friction pressure drops through the horizontal and curved portions of small-diameter liners, which may reduce the calculated net flowing fluid head at the pump [(49)] inlet to a value below the required minimum NPSH of the pump. This indicates that cavitation is likely to occur in the pump, with highly detrimental erosion effects and a reduced flowrate. To alleviate this problem, flow from each drainhole may be directed to an oil sump (50), with the pump taking suction at or near the bottom of the sump. See FIG. 6b. The top of the sump is closed by a packer (51) a short distance above the highest kick-off point. It constitutes the apex of a kind of syphon (see [FIG. 6])



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FIG. 6b) for each drainhole. For very low GOR oil, frequently present in under-pressured mature reservoirs, the flowing pressure at that point may still be well above the bubble point of the production stream, so that the risk of cavitation and break-up of the de-accelerating liquid stream at that point is much less than it would be in a pump at the same location. The flowing pressure at the apex, plus the liquid head in the sump, provide a pump suction pressure exceeding the minimum NPSH required, thus eliminating the risk of cavitation in the bottom pump.

#### IN THE DRAWINGS

Pursuant to the condition of the Decision of this Office dated October 8, 1999, granting Applicant's Petition for the original filing date, please cancel Figs. 3 and 6 of the drawings from the '120 patent and this application, as shown in the attached Figs 3 and 6 in which the figures have been crossed out in red and "canceled" has been written next to the figures.

#### IN THE CLAIMS:

Please cancel claims 30, 40-117, 119, 121, 122, 125, 129-174, and 178-197, without prejudice.

Please amend the claims as follows:

126. The well of Claim 28, further comprising:

casing in the primary borehole, and an opening in said casing at the site of the intersection between said primary borehole and said branch borehole, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole.

127. The well of Claim 28, wherein said primary borehole includes casing having an opening therethrough at the intersection of said primary and branch boreholes, said first portion

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of said tubular member residing in said casing and said second portion of said tubular member extends through said opening and into said branch borehole.

198. A lateral seal and control system comprising:

- a) a first borehole having a first window therein, said window having a periphery;
- b) a second borehole extending from said first borehole coextensive with said window;
- c) a housing having a premachined window, the premachined window being orientable with said first window;
- d) a production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; said pipe being maintained substantially within said housing during run in and being movable from the run in position to a deployed position wherein said flange is mated against said periphery of said premachined window.

199. A lateral seal and control system comprising:

- a) a first borehole having a first window therein, said window having a periphery;
- b) a second borehole extending from said first borehole coextensive with said window;
- c) a housing having a premachined window, the premachined window being orientable with said first window;
- d) a production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; said pipe being maintained substantially within said housing during run in and being movable from the run in position to a deployed position.

wherein said flange is mated and energized against said periphery of said premachined window to seal said flange with said periphery of said premachined window.

200. A method of sealing the intersection between a first borehole and a second borehole extending from said first borehole comprising the steps of:

running into the first borehole a housing and tubular member assembly, said housing having a window and said tubular member including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said tubular member substantially within said housing during run in; and

aligning said window of said housing with said second borehole and moving said tubular member from the run in position to a deployed position wherein said flange is mated against said periphery of said window.

201. A method of sealing the intersection between a first borehole and a second borehole extending from said first borehole comprising the steps of:

running into the first borehole a housing and tubular member assembly, said housing having a window and said tubular member including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said tubular member substantially within said housing during run in;

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aligning said window of said housing with said second borehole and moving said tubular member from the run in position to a deployed position wherein said flange is mated against said periphery of said window; and  
urging said flange against a periphery of said window.

204. A method for sealing the juncture between a branch wellbore and a parent wellbore comprising:

- a) drilling a parent wellbore;  
b) drilling a window and branch wellbore by placing a deflecting tool in a parent wellbore and running a drill string from the parent wellbore;  
c) removing the deflecting tool;  
d) running a tubular member having a flange at the uphole end thereof;  
e) kicking said tubular member into the branch wellbore and urging the same downhole until said flange is in sealed contact with a periphery of said window.

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Please add claims 205-212 as follows:

205. A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;  
drilling said branch borehole;

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installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

206. A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole;

delivering a cementitious slurry at the juncture between said tubular member and said primary borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

207. A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:



forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole;

delivering a cementitious slurry at the juncture between said tubular member and said primary borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

208. A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and yet permits communication of a region in the primary borehole above the tubular member with a region in the primary borehole below the tubular member and wherein a second portion of said tubular member resides in said branch borehole;

wherein said step of installing said tubular member includes the steps of

positioning a diverter at the entrance to said branch borehole, said diverter closing  
the primary borehole and including a portion for catching sealing material;  
diverting said second portion of said tubular member into said branch borehole  
using said diverter; and  
applying sealing material to said intersection; and  
removing at least a section of said first portion of said tubular member and at least a part  
of said diverter to reopen said primary borehole.

209. The well of claim 126 including cement between (1) said tubular member and (2)  
said casing.

210. A method for sealing the junction between a branch wellbore and a parent  
wellbore comprising:

(a) installing a tubular member having a premachined window therein such that said  
premachined window is aligned with said branch borehole;

(b) running through said premachined window a pipe having a flange at an uphole end  
thereof, said flange being of larger dimension than said premachined window; and

(c) urging said flange against a periphery of said premachined window.

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211. A method of sealing the intersection between a first borehole having a first window therein, said first window having a periphery, and a second borehole extending from said first borehole coextensive with said first window, comprising the steps of:

running into the first borehole a housing and tubular member assembly, said housing having a second window and said tubular member including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said tubular member substantially within said housing during run in; and  
aligning said second window of said housing with said first window and moving said tubular member from the run in position to a deployed position wherein said flange is mated against said periphery of said second window.

212. A method of sealing the intersection between a first borehole having a first window therein, said first window having a periphery, and a second borehole extending from said first borehole coextensive with said first window, comprising the steps of:

running into the first borehole a housing and tubular member assembly, said housing having a second window and said tubular member including a flange at an uphole end thereof, said flange being of larger dimension than said second window;

maintaining said tubular member substantially within said housing during run in;  
aligning said second window of said housing with said first window and moving said tubular member from the run in position to a deployed position wherein said flange is mated against said periphery of said second window; and

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urging said flange against a periphery of said second window to seal said flange with said periphery of said second window.

II. REMARKS

This Revised Amendment C and Request for Interference ("Amendment C") is filed to correct the format of the previously filed Amendment C and Request for Interference and for the purpose of provoking an interference with U.S. Patent Nos. 5,520,252; 5,322,127; and 5,787,987 (the '252, '127, and '987 patents).

As of this date, claims patent claims 1-7 and added claims 8-16, 18-19, 21-29, 31-33, 35-39, 120, 123-124, 126-128, 175-177, and 198-212 are pending in this application. Added claims 17, 20, 30, 34, 40-119, 121-122, 125, 129-174, and 178-197 have been canceled.

In accordance with this Office's Decision dated October 8, 1999, granting Applicant's Petition for Grant of Filing Date and awarding Applicant a filing date of December 30, 1991, Applicant has canceled figures 3 and 6, pages 42-44 of the original application for the '120 patent, and those portions of the specification referencing Figures 3 and 6 or reference numerals only appearing in those figures. Applicant has also moved the discussion concerning Case 3 contained in the Brief Description of the Drawings to a part of the Detailed Description of the Invention. No new matter has been added.

The substance of the above amendments was proposed earlier, but the amendments likely were not entered. When Applicant originally filed this reissue application, Applicant proposed the amendment of portions of the specification regarding Figs. 3 and 6 and the cancellation of

Figs. 3 and 6, conditioned upon Applicant being granted his original filing date of December 30, 1991. See Reissue Application Declaration of Michel Gondouin, ¶ 11. Because Applicant did not initially receive his original filing date, it is unlikely that the proposed amendments were in fact accepted or entered. In view of the Decision granting Applicant his earlier filing date, the condition for the acceptance of the amendments has now been met. To ensure that the proposed amendments are now accepted and entered, Applicant in this Amendment C has formally presented the previously proposed amendments.

Applicant has taken steps to streamline the application toward an interference. For example, through this Amendment C, Applicant has canceled a number of claims, without prejudice of his right to pursue those claims at a later date. Canceling these claims will allow this Office and the parties to focus upon the issues presented in this request for interference and avoid undue complexity. Applicant expressly reserves the right to pursue and obtain issued patent claims for the subject matter of these canceled claims.

Applicant has also amended certain claims. Those amendments have been made to better and more clearly define Applicant's invention and provide Applicant with a fuller scope of protection. None of the amendments have been made in response to the prior art rejections in the Office Action of April 27, 1998. In that regard, Applicant notes that each prior art rejection was based on the '252 patent as a primary reference under § 102(e). That patent, however, is no longer available as prior art, since Applicant has been regranted his original filing date of December 30, 1991.

By this Amendment C, Applicant has also added claims 205-212. As a result, claims 1-7, 8-16, 18-19, 21-29, 31-33, 35-39, 120, 123-124, 126-128, 175-177, and 198-212 are currently pending in this application.<sup>1</sup> To assist the Examiner in his consideration of this request for interference, the pending claims (other than previously issued patent claims 1-7) are reproduced at Appendix A. Applicant proposes that all of the claims in Appendix A become part of a declared interference with the '252, '127, and '987 patents.

Applicant calls to this Office's attention another patent, U.S. Patent No. 5,301,760 ("the '760 patent"). Although Applicant has not copied any claims in the '760 patent, Applicant notes that there are analogies between the subject matter of the broadest claims in the '760 patent and the subject matter of certain application claims being pursued in this interference. Applicant is not now requesting a declaration of interference with the '760 patent. Indeed, Applicant is uncertain whether this Office would institute an interference, if one were requested, given the common interests Halliburton has in both this reissue application and the '760 patent. See 37 C.F.R. § 1.602; MPEP § 2302. The nature of those interests are described below.

Halliburton Company ("Halliburton") owns this reissue application and Applicant's U.S. Patent No. 5,462,120, through an assignment. Halliburton Energy Services, a division of

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<sup>1</sup>The wording of these presently pending claims is defined by the combined effect of (1) the original patent, (2) the original reissue application, (3) the Amendment A dated October 21, 1998 (which canceled claims 17, 20, 34, and 118 without prejudice, amended claims 13, 15, 16, 19, 25, 26, 28, 30, 32, 40, 41, 44, 46, 47, 48, 49, 50, 51, 56, 58, 66, 79, 84, 104, and 117, and added claims 119-197); (4) the Amendment B dated August 3, 1999 (which added claims 198-204); and (5) this Amendment C (which cancels claims 30, 40-117, 119, 121-122, 125, 129-174 and 178-197, amends claims 126, 127, 198, 199, 200, 201, and 204, and adds claims 205-212). Applicant notes that the Preliminary Amendment dated December 23, 1997 was not entered. See Office Action of April 27, 1998, page 2.

Halliburton Company has an exclusive license to the '760 patent. The '760 patent issued on April 12, 1994 to Stephen A. Graham and was assigned to Natural Resource Group, Inc. ("NRG"). Under its license agreement with NRG, Halliburton has the right to grant sublicenses, subject to a then existing non-exclusive license to Sperry Sun Drilling Services.<sup>2</sup> The Agreement also provides Halliburton with the right to institute suit for infringement.

### III. REQUEST FOR AN INTERFERENCE

Through this Amendment C filed pursuant to 37 C.F.R. § 1.607, Applicant respectfully requests that an interference be declared between this reissue application and issued U.S. Patent Nos. 5,520,252; 5,322,127; and 5,787, 987. These three patents (the '252, the '127, and the '987 patents) are assigned to a single party, namely Baker Hughes, Inc. A copy of each of these patents is submitted, respectively, as Appendices D, E, and F.

For the reasons explained more fully below, Applicant proposes eight counts to define the interfering subject matter between the claims in this application and the claims in the '252, '127, and '987 patents. The counts proposed by Applicant are set forth in Section VII of this Amendment C and in Appendix B. Alternative counts in the "Claim X OR Claim Y" format are set forth in Appendix C. The application and patent claims that correspond to the proposed counts are identified in Section VII of this Amendment C and are also presented in tabular form at Section VIII of this Amendment C. The information required by 37 C.F.R. § 1.607(a) is set forth below.

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<sup>2</sup>Sperry Sun Drilling Services and Halliburton have subsequently merged, effectively resulting in a fully-exclusive license to Halliburton.

A. THE '252 AND '127 PATENTS

This request for interference presents an unusual circumstance. It appears to Applicant that two different issued patents (the '252 and the '127 patents) claim interfering subject matter with each other and with that disclosed and claimed by Applicant. Both the '127 patent and the '252 patents are based at least in part on applications that were filed on the same day, by the same corporate owner. Both patents share a common named inventor. Both appear to have the same figures, as well as virtually identical specifications.

Applicant has substantially copied claims from the '252 patent. Applicant believes that claimed subject matter in the '127 patent interferes with certain subject matter of the copied claims of the '252 patent. Applicant therefore proposes that an interference be declared between this reissue application and these two issued patents.

Applicant requests that application claims 8-16, 18-19, 21-29, 31-33, 35-39, 120, 123-124, 126-128, and 205-209 be placed in interference with all of the claims of U.S. Patent No. 5,520,252 ("the '252 patent"), which issued on May 28, 1996 and is entitled "Method and Apparatus for Sealing the Junction Between a Vertical Well and One or More Horizontal Wells."

Applicant further requests that application claims 10, 25, 126-128, 205, 207, and 209, also be placed in interference with all of the claims of U.S. Patent No. 5,322,127 ("the '127 patent"), which issued on June 21, 1994 and is entitled "Method and Apparatus For Sealing The Junction Between One or More Horizontal Wells." Certain of the counts and corresponding claims presented for provoking an interference with the '252 patent are believed to be sufficient to support the proposed interference with the '127 patent.



B. THE '987 PATENT

Applicant requests that application claims 175-177, 198-204, and 210-212 be placed in interference with claims 1-30 in U.S. Patent No. 5,787,987 ("the '987 patent"), which issued on August 4, 1998 and is directed to a "Lateral Seal and Control System."

IV. APPLICANT'S FILING DATE ANTEDATES THE EARLIEST POSSIBLE EFFECTIVE FILING DATES OF THE '252, '127, AND '987 PATENTS

A. Priority to '252 and '127 Patents

Applicant's issued U.S. Patent No. 5,462,120 identifies on its face a filing date of January 4, 1993. However, Applicant filed a specification, claims, drawings, and a fee with this Office on December 30, 1991, and was originally granted a filing date of December 30, 1991 for those application papers. Although that filing date was later canceled by this Office during the prosecution of the '120 patent, Applicant through this reissue sought and obtained the restoration of December 30, 1991 as the filing date.

This Office, by a Decision dated October 8, 1999, granted Applicant's petition for the original filing date, to the extent and subject to the conditions set forth in the Decision. Pursuant to that Decision, Applicant is canceling Figs. 3 and 6 from the drawings. Applicant also is prepared to surrender his original patent and hereby acknowledges and agrees that the PTO shall treat the original disclosure of U.S. Patent No. 5,462,120 as containing only the disclosure deposited in the PTO on December 30, 1991, namely, the application papers without pages 42 through 44 of the specification (which pages only contained claim language) and without Figs. 3

and 6 of the drawings. As the Decision requires, Applicant further agrees that the prosecution of this reissue application shall proceed to reissuance based on the disclosure originally deposited in the PTO on December 30, 1991 for Application No. 07/814,585. Because Applicant has agreed to comply and has complied with the conditions set forth in the Decision granting his petition, this application is entitled to the filing date of December 30, 1991. Accordingly, Applicant has proposed an amendment of the patent to contain the proper filing date.

A filing date of December 30, 1991, is over seven months prior to the earliest possible filing date (August 7, 1992)<sup>3</sup> to which the '252 and '127 patents are entitled. In view of that priority and for additional reasons explained below, no showing pursuant to 37 C.F.R. § 1.608 is required.

B. Priority to the '987 Patent

Applicant's filing date of December 30, 1991 is prior to the earliest possible filing date (September 6, 1995)<sup>4</sup> of any application identified on the '987 patent.

V. THE SUBJECT MATTER OF THE CLAIMS HAS BEEN FOUND TO BE PATENTABLE

Applicant's claims 8-16, 18, 19, 21-29, 31-33, 35-39, 120, 123-124, 126-128, and 205-209 are nearly identical in language and/or subject matter to claims 1-8, 10, 11, 13-15, 19-26, 28-

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<sup>3</sup>Applicant reserves the right to contest any claims by the owner of the '252 patent for priority based on the various parent applications identified in that patent.

<sup>4</sup>Applicant reserves the right to contest any claims by the owner of the '987 patent for priority to any parent application identified in that patent.

30, 32, and 36-40 in the '252 patent. Several of those claims are also directed to the same inventions as claims in the '127 patent. The claims of the issued '252 and '127 patents have been found to be patentable.

Additionally, Applicant's claims 175-177 are identical to, and claim 210 corresponds to, claims 21-23 in the '987 patent, and Applicant's claims 198-204 and 211-212 are nearly identical in scope and subject matter to claims 4, 5-7, 19 and 27 in the '987 patent. The claims of the issued '987 patent have been found to be patentable.

#### VI. THE CLAIMS ARE SUPPORTED BY APPLICANT'S DISCLOSURE

Claim charts setting forth the support in the specification and/or drawings for the reissue claims in interference are presented in the Claim Chart to Preliminary Amendment, filed on December 23, 1997, in the Appendix to Amendment A - Claim Chart, filed with Applicant's Amendment A dated October 21, 1998, and in the Appendix G to Amendment C - Claim Chart, filed along with this Amendment C. Those charts set forth an element-by-element recitation of the claims and an indication of passages in the originally filed application or drawings where the claims find support. In addition, Applicant through Amendment A and this Amendment C explains the basis for § 112 support of several of the claims.<sup>5</sup>

In the Office Action of April 27, 1998, the Examiner concluded that many of the pending claims find § 112 support in Applicant's specification and drawings. More specifically, the

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<sup>5</sup>Applicant is not limiting himself solely to the cited passages or explanations but instead expressly reserves the right to rely upon other portions of the specification and drawings to establish § 112 support, as the interference proceeds.

Examiner already has examined each of pending claims 1-7, 8-12, 15-16, 18, 21-22, and 24-27 and found them to be supported by the original specification and drawings. In certain instances, the Examiner in that Office Action expressed the view that some of the originally-filed reissue application claims did not have § 112 support. In response, Applicant through Amendment A amended certain of those claims and/or presented reasons why all the application claims presented as of that date have § 112 support. The claims that are still pending and that were previously rejected for asserted lack of § 112 support include application claims 13, 14, 19, 28-29, 31-33, and 35-39. In Amendment A, claims 13, 28, and 32 were amended, while claims 14, 19, 29, 31, 33, and 35-39 remain unchanged, both in Amendment A and this Amendment C.

During an interview on December 13, 1999, Applicant's attorney, Richard L. Stroup, generally described and discussed the § 112 support of the claims identified in the Interview Summary Record. As generally referenced in the Interview Summary prepared by the Examiner, application claims 13, 19, 28, and 38 and proposed counts 3, 5, 6, and 7 were discussed during that interview. The substance of that discussion is incorporated in the claim charts of record and the arguments set forth below.

With respect to claim 13, Applicant pointed out that claim 13, as amended through Amendment A, had support in the embodiments of cases 3, 4, and 4a, illustrated in part by Figs. 3a, 3b, 4, and 10, respectively. Claim 13, as amended, recites the step of providing said diverter with a removable portion and removing said portion during the opening of the primary borehole. This claim is supported by several embodiments disclosed by Applicant.

In case 3 and the second embodiments of cases 4 and 4a of Applicant's patent, an "intermediate liner" is run in through the window and cemented, and the liner is equipped with an elliptical collar made of drillable metal. These embodiments are illustrated in part in Figs. 3a, 3b, and 11. In these embodiments, the diverter includes a drillable whipstock packer 31 and a retrievable whipstock 32, both of which are illustrated in Figs. 3b and 11. See col. 7, lines 48-53; col. 9, line 67 - col. 10, line 14; col. 17, lines 12-21. The specification explains that after the cement is set and the cementing string has been pulled out, the whipstock is pulled out and the supporting whipstock packer 31 is also drilled out and pulled out. See, e.g., col. 8, lines 21-28.

In the first embodiments of case 4 (Fig. 4) and case 4a (Fig. 10) of Applicant's patent, the diverter is in the form of two tubular guides or cages 41 and 42 made of drillable metal. These tubular guides or cages support and direct "liner stubs" 39 which are extended. The patent expressly teaches that drillable guides or cages are drilled out after the cement is set. See, e.g., col. 16, lines 41-44.

During the interview, the Examiner seemed to agree that the embodiments of cases 3, 4 and 4a all disclose a diverter with a removable portion that is removed, as claimed in claim 13. He also seemed to agree that the embodiments in case 3 (and thus the second embodiments of case 4 and 4a) disclose a "liner," as claimed in intervening claim 9. However, the Examiner expressed the view that Figs. 4 and 10 did not support the claimed "liner" called for in intervening claim 9. The Examiner seemed to believe that the term "liner" in claim 9 is not sufficiently broad, as a matter of claim construction, to include the "liner stubs" disclosed by Applicant and illustrated in Figs. 4 and 10.

Applicant understands that, even accepting the Examiner's analysis regarding the term "liner," there is full § 112 support for claim 13 through several embodiments. So that the record is clear, Applicant nevertheless respectfully traverses the Examiner's narrow construction of the term "liner" and requests a reconsideration of the Examiner's belief that the embodiments in Figs. 4 and 10 do not support the broad claim language "liner" found in claim 9. Under the M.P.E.P., claims must be given their broadest reasonable interpretation. M.P.E.P. § 2111. In that regard, Applicant notes that the term "liner" is broadly defined in dictionaries as "a lining." See The American Heritage College Dictionary, 3rd. Ed., 789 (1997). The '252 patent uses the term "liner" broadly throughout. Indeed, there is no indication that Baker Hughes meant to narrowly restrict the claims so that they would not cover Applicant's "liner stub." Applicant similarly uses the term "liner" broadly when describing the "stub liners" shown in Figs. 4 and 10. The broad definition of the term "liner" encompasses the intermediate liners described in case 3, as well as the stub liners described in cases 4 and 4a, as well as other "liners" known in the trade.

Under the above circumstances, claim 13, as well as claim 15 which depends from claim 13, is supported by the present application. Likewise, claim 32 which recites a well including a removable portion in the form of "said diverter" is supported. Each of these claims is supported by Applicant's embodiments shown in Figs. 3a, 3b, 4, 10, and 11.

During the interview, the Examiner and Applicant's attorney also discussed claim 19, which requires that the sealing step comprises the delivery of cementitious slurry between said liner and said primary borehole. During the interview, the Examiner noted that Fig. 10 provides supports for the language of claim 19. Applicant respectfully submits that the embodiments

shown in Case 3, as well as the embodiments shown in Figs. 4 and 10, disclose the delivery of a cementitious slurry between the liner (whether it be a liner stub, or intermediate liner, or any other liner) and the primary borehole.

In the completion of the embodiments of Figs. 4 and 10, both the primary casing at the junction and the liner are cemented in place at the same time. As the Examiner agreed, the cement fills the under-reamed portion and is positioned, among other locations, between the primary casing and the liner stub. See col. 8, lines 57-59. The result is the leak-proof connection between the drainhole liners and the vertical casing, as intended by Applicant in all cases. See col. 2, lines 29-32.

The embodiments of case 3 (and the second embodiments of case 4 and case 4a) also meet this requirement. See, e.g., col. 7, lines 61-63; col. 8, lines 11-20; col. 16, lines 20-28. In those embodiments the liner is cemented pursuant to a technique disclosed in case 2 and Fig. 2A, wherein cement is applied to seal the intermediate liner and the primary casing. Again, the patent expressly teaches that, in all cases, it is intended to obtain a leak-proof connection between the drain hole liner and the vertical casing. See col. 2, lines 30-35. Case 3 expressly reference a cementing technique with a tail pipe and cup-type packer disclosed in case 2. See Col. 8, lines 11-15. As explained in the written description of case 2, cement is injected behind the liners, to tie in and seal the intermediate liners to the primary casing. See col. 6, lines 16-28. Thus, in each of these embodiments a cementitious slurry is delivered between said liner and said primary borehole as specified in claim 19. Claim 19, therefore, finds support in the written

description. Likewise, claim 36, which recites a well including "cement between (1) said liner and (2) said primary borehole" finds support in the written description of the present application.

During the interview, claim 28, as amended through Amendment A, was discussed. In that regard, the Examiner seemed to agree that the amendment of claim 28--to delete the recitation of an opening through the tubular member and substitute a first portion of that member being removed--overcame the rejection regarding the use of the word "opening." However, the Examiner then expressed the view that the phrase "such that a region in the primary borehole above the tubular member communicates with the region in the primary borehole below the tubular member" should be narrowly construed to require that the entire region in the primary borehole above the tubular member not communicate with any region in the primary borehole below the tubular member, until the removing step took place. Applicant respectfully traverses that rejection because the claim as rewritten only requires that some communication be provided through the removing step. By removing the portion of the tubular member in the primary borehole, Gondouin provides communication from the region above that portion of the tubular member to a region below that portion of the tubular member. The claim language is thus literally met. The claim has been written in an open-ended fashion using the term "comprising" and does not preclude other communication. Again, claims must be given their broadest reasonable interpretation. M.P.E.P. § 2111. For at least these reasons, claim 28 -- and claims 29, 31, 33, 37, and 39, which depend from claim 28 -- are supported by this application.

Claim 38 was also discussed during the interview. Claim 38 provides that the diverter closes the borehole to support sealing material. Applicant explained that in case 3 the cementing



procedure included the cementing process disclosed in case 2 and the goal of obtaining leak proof connections. Applicant further referenced the language at column 7, lines 60-63, where the patent expressly states that the base of the whipstock is equipped with a rubber cup for catching excess cement during later operations. As Applicant pointed out, the disclosure clearly contemplates that the diverter would support sealing material. After considering these disclosures, the Examiner agreed that claim 38 appears to be supported.

During the interview the Examiner and Applicant's counsel discussed some potential counts that were presented to the Examiner during the interview. Copies of those potential counts are attached to the Interview Summary.

Proposed counts 1 and 2 were not discussed, because the Examiner previously found claims almost identical to those counts to be supported. In that regard, count 1 corresponds to application claim 8, which the Examiner has already concluded is supported by the application. Similarly count 2 corresponds to application claim 205, which merely places the subject matter of claim 10 in independent form and uses the term "tubular member" rather than "liner." The Examiner previously concluded claim 10 is supported by the application.

During the interview, the Examiner compared the claim language of counts 3 and 5 with the embodiments of cases 3, 4, and 4a and concluded that proposed counts 3 and 5 appear to have support in the application. Proposed count 4 was not discussed during the interview, because that count includes limitations already incorporated in one or more of counts 1 through 3 and 5.

With respect to proposed count 6, the Examiner found that Applicant had support for the elements and limitations of the count, with the exception that the Examiner expressed the view

that there was no support for the limitation that the seal between the flange of the liner and the window is formed "by fluid pressure applied to the interior of the casing." During the interview the Examiner seemed to interpret the count as requiring that the seal be formed solely by fluid pressure applied to the interior of the casing, and by no other means. Applicant does not fully understand the Examiner's analysis, since the proposed count 6 presented during the interview does not even require the application of fluid pressure to the interior of the casing. Instead, the proposed count only recites that the flange of the pipe is urged against the periphery of the window to seal the flange with the window.

The Examiner's tentative construction (of the proposed count 6 presented during the interview) raises the possibility that claim 175, which corresponds to the proposed count 6, might be possibly interpreted too narrowly to provide Applicant with a full and proper scope of protection. To overcome any such possibilities, Applicant has added claim 210, which corresponds to claim 175, but does not include the language "to seal said flange with said periphery of said premachined window." Amended claim 210 is identical to the language of proposed count 6 presented in this Amendment C.<sup>6</sup>

Applicant respectfully submits that the Examiner's narrow interpretation of claim 175 is improper and that application claim 175 is fully supported by this application. First, claim 175 does not require that the window be sealed by "fluid pressure." The claim only requires "urging" of said "flange" against the periphery of the window "to seal" the flange with the periphery of the

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<sup>6</sup>For the same reasons, Applicant has amended claim 201 to delete the phrase "to seal said flange against a periphery of said window." Claim 201 is identical to proposed count 8 presented in this Amendment C.

window. Second, the '987 patent, from which this claim was copied, does not form a seal simply by applying fluid pressure to the interior of the casing, or simply by urging the flange against the periphery of the window. Instead, the seal is formed by the combination of placing sealing material, such as an elastomeric compound, on the flange of the liner ('987 patent, col. 6, line 58 - col. 7, line 7) and then applying force. The '987 patent teaches that the seal 42 is energized by biasing the flange against the window. '987 patent, col. 7, lines 8-14. In one embodiment, this is achieved by pressing the flange of the liner against the window of casing by fluid pressure. '987 patent, col. 7, lines 56-59. The '987 patent describes this pressure as "enhancing" the seal of the flange. '987 patent, Abstract, lines 9-10.

Applicant similarly teaches the application of sealing material on the drillable collar and at the juncture between the liner and the casing and applying fluid pressure to the interior casing to press the flange against the window while the cement sets. Col. 8, lines 5-20. Applicant Gondouin teaches that the drillable collar is covered with "a plastic sealing material" 3(b) (see Fig. 3a) and further teaches applying cement at the juncture. Id. As explained, after the collar is closely fitted with the casing's window and the cement slurry is applied, a ball or plug is dropped to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing. Thus, like the '987 patent, Applicant teaches urging the flange against the periphery of the window "to seal the said flange," as claimed in claim 175. For at least these reason, claim 175 is supported by the present application.

With respect to proposed count 7, the Examiner seemed to agree that all the claims and elements and limitations set forth in that count were supported by the application, with the

exception that the Examiner expressed the view that there was no window in the primary well bore for the window in the housing and production pipe assembly to align, as recited in the last step. In that regard, the Examiner expressed the view that the under-reamed annular portion (cases 4 and 4a) is not a window. The Examiner also expressed a view that there appeared to be no support in Applicant's patent for "production pipe."

Applicant by this Amendment C has presented a new, broader, claim to serve as proposed count 7 in this Amendment C. Specifically, Applicant has amended claim 200 by removing the requirement that there be a window in the primary borehole. Applicant has also replaced the term "production pipe" with the broader term "tubular member" to increase the scope of protection. Claim 200 therefore provides the broader protection to which Applicant is entitled.

Applicant does not, however, agree with the Examiner's narrow interpretation of proposed count 7, presented during the interview. Instead, Applicant is pursuing a separate claim 211 that recites a "window" in the primary borehole. In that regard, Applicant disagrees with the Examiner's view that the under-reamed annular portion in cases 4 and 4a (Figs. 4 and 10, respectively) is not a "window," particularly when that term is given its broadest reasonable interpretation. As explained in the '987 patent, the term "window" simply means an open area into which secondary bores are drilled. Indeed, the '987 patent, when describing the embodiment which uses the pre-machined window joint, does not use the term "window" in connection with an opening in the primary borehole. Instead, the '987 patent states that the opening in the pre-machined window joint 28 is aligned with the lateral. See col. 5, ll. 46-51. The only time the '987 patent refers to an opening to the lateral as a "window" is in the embodiment where there is

no housing having a premachined window. See '987 patent col. 8, lines 30-34. Thus, consistent with this description, an open area beyond the primary hole, as Applicant's under-reamed portion in cases 4 and 4a, serves as a "window." For at least these reasons, claim 211 is supported by the present application.

Applicant also respectfully submits that there is support for the broad term "production pipe" included in some of the pending claims, such as claim 198. Claim 198 is copied from the '987 patent, which uses the term "production pipe" in a broad sense. As explained in the '987 patent, the purpose of the disclosed invention is to provide a tight seal between a primary borehole and a lateral borehole. '987 patent, col. 3, lines 45-57. This is achieved by using a production pipe with a flange and a flange seal. *Id.* The patent broadly discloses that the distance between the nose 36 of the production pipe 34 and its flange 40 and sealing element 42 "may be relatively long or relative short, without departing from the scope of the invention." '987 patent, col. 4, lines 58-63. Thus, the term "production pipe" covers both long and short tubular members like the intermediate liners and liners stubs disclosed by Applicant in his patent. Again, the claims must be given their broadest reasonable interpretation. M.P.E.P. § 2111.

As to the remaining, pending claims that were not discussed during the interview but were rejected in the outstanding Office Action as not supported, Applicant believes those claims are likewise supported, for the reasons explained in Amendment A. To assist the Examiner, Applicant briefly will repeat or rephrase certain arguments made in Amendment A.

With respect to claim 14, which includes "milling said section and said diverter to effect their removal," the Examiner in an Office Action stated that Applicant's whipstock is pulled out,

not milled out. Applicant respectfully disagrees and requests reconsideration. The tubular guides which act as a diverter shown in Figs. 4 and 10 are milled out. See, e.g., col. 8, lines 62-64, col. 10, lines 11-14, col. 16, lines 41-44. Moreover, a portion of the diverter of Fig. 3b is also drilled out. The "diverter" shown in Fig. 3b includes both the whipstock and a drillable whipstock packer (31). As described, the whipstock packer is drilled out. See, e.g., col. 7, lines 48-53, col. 8, lines 25-27, col. 10. Thus, this application does support milling out the diverter as claimed in claim 14.

As to claims 23 and 35, which recite a well including "a bore formed axially through said diverter," the Examiner expressed the view that Applicant's disclosure does not show a bore formed axially through a diverter. In that regard, the Examiner expressed the opinion that limitations of intervening claim 9 (to claim 23) [and apparently claim 29 to claim 35] -- both claiming a "liner"-- somehow prevented the tubular guides or cages of Figs. 4 and 10 from properly being considered as the diverter. Applicant does not understand this analysis and respectfully requests reconsideration. As explained above, the liner stubs illustrated in Figs. 4 and 10 are liners, as that term is defined and used in the patents at issue. Moreover, as explained in Amendment A, the guides shown in case 4 and 4a (Figs. 4 and 10) act as a diverter to divert the liner stub into the branch borehole. These guides 41 and 42 are described as tubular (see, e.g., col. 8, lines 62-64), and tubes have a bore therethrough. Accordingly, claim 35 is supported by the present application.

VII. PROPOSED INTERFERENCE COUNTS AND CORRESPONDING CLAIMS

Applicant proposes that an interference be initiated based on eight (8) counts. The counts Applicant suggests are reproduced at Appendix B, and alternative counts (in a "Claim X OR Claim Y" format) are set forth at Appendix C.

An interference is appropriate between an application and an unexpired patent of a different party when the application and the patent contain claims to the same patentable invention. 37 C.F.R. § 1.601(i). The test for determining whether two parties claim the same patentable invention is set forth at 37 C.F.R. § 1.601(n), which provides:

Invention "A" is the same patentable invention as invention "B" when invention "A" is the same as (35 U.S.C. § 102) or is obvious (35 U.S.C. § 103) in view of invention "B" assuming invention "B" is prior art with respect to invention "A."

Under this test, Applicant proposes eight (8) counts because Applicant's application, and the respective patents, respectively, disclose and claim interfering subject matter to a number of patentably distinct inventions.

The counts Applicant proposes -- and the corresponding claims in this reissue application and the patents -- are identified below. Once an interference is initiated and as the interference proceeds, Applicant reserves the right to propose different counts and claim correspondence, depending upon the facts and circumstances that arise as the interference proceeds.

A. Count 1

1. Proposed Count

Proposed count 1 is reproduced below:

A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

This count 1 is identical to application claim 8 and almost identical to claim 1 of the '252 patent. The sole exception is that the term "liner" in claim 1 is replaced with the broader term "tubular member" in application claim 8.

Applicant suggests that claims 1, 3-10, 12-23, 25-28, 31-35, 38, and 40 of the '252 patent and application claims 8, 9, 11-16, 18, 21-24, 26-29, 31-33, 35, 37, 39, 120, and 123 correspond to proposed count 1.

## 2. Proposed Alternative Count

Applicant notes that application claims 27, 29, 31-33, 35, 37, 39 and claims 20-23, 25-28, 31-35, and 40 of the '252 patent are claims directed to a "well," rather than a method *per se*. To the extent the Examiner for any reason believes that the broadest well claim is not of the same or similar scope as proposed method count 1, Applicant proposes that the Examiner adopt an alternate count 1 that sets forth, in the alternative "or" format, the invention defined by claim 8 of this application and well claim 21 of the '252 patent. The proposed alternate count 1 is set forth in Appendix C.

## B. Count 2

### 1. Proposed Count

Proposed count 2 is reproduced below:



A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

drilling said branch borehole;

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

Proposed count 2 is identical to application claim 205. Claim 205 is an independent claim that places in independent format the subject matter of previously filed application claim 10, except that it recites the broader term "tubular member" instead of "liner." Claim 10, in turn, literally corresponds to claim 2 of the '252 patent.

Count 2 is analogous to the invention of proposed count 1 but recites that the primary borehole has a casing and also recites the additional step of forming an opening in said casing at the site of the intersection between the primary borehole and a branch borehole and drilling the branch borehole. The claimed combination as a whole, including these added limitations, renders count 2 patentably distinct from the other counts.

Applicant suggests that claims 2, 24, 37, and 39 of '252 patent; claims 1-7 and 9-18 of the '127 patent; and claims 10, 25, 126-128, and 205 of this application correspond to count 2.

## 2. Proposed Alternative Count

Applicant recognizes that the language and format of the method claims in the '127 patent are not identical to those in the '252 patent and this application. Applicant also recognizes that certain of the corresponding claims are "well" claims, as opposed to "method" claims.

Specifically, claims 24 and 39 of the '252 patent and claims 126-128 of this application are well claims. If the Examiner for any reason concludes that the broadest corresponding method claim in the '127 patent and/or the broadest corresponding well claim is not of the same or similar scope as proposed method count 2, Applicant suggests that the count be described by the "alternative" format, identifying the method claim 205 of this application, the method claim 1 of the '127 patent, and the well claim 24 of the '252 patent (in independent format). This alternative count is set forth in Appendix C.

C. Count 3

1. Proposed Count

Proposed count 3 is reproduced below:

A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole;

delivering a cementitious slurry at the juncture between said tubular member and said primary borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

Proposed count 3 is identical to application claim 206. Claim 206 places in independent format the subject matter of previously filed application claim 19 except that claim 206 recites the broader term "tubular member" instead of "liner" and recites the broader step of delivering cementitious slurry "at the juncture between said tubular member and primary borehole," rather than "between" that member and the primary borehole. Claim 19, in turn, literally corresponds to claim 11 of the '252 patent.

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Count 3 is analogous to proposed count 1 but recites the additional limitation of sealing at the intersection of the tubular member and the primary borehole by delivering a cementitious slurry at the juncture between the liner and the primary borehole. The claimed combination as a whole, including this added limitation, renders proposed count 3 patentably distinct from the other proposed counts.

Applicant suggests that proposed count 3 corresponds to claims 11 and 29 of the '252 patent and claims 19, 36, 124, and 206 of this application.

2. Proposed Alternative Count

Applicant recognizes that certain of the corresponding claims are "well" claims, as opposed to "method" claims. Specifically, claim 29 of the '252 patent and claim 36 of this application are well claims. If the Examiner for any reason concludes that the broadest corresponding well claim is not of the same or similar scope as the proposed method count 3, Applicant suggests the alternative count 3 at Appendix C, combining method claim 206 of this application and "well" claim 29 of the '252 patent (in independent format).

D. Count 4

1. Proposed Count

Proposed count 4 is reproduced below:

A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby

blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole;

delivering a cementitious slurry at the juncture between said tubular member and said primary borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

Proposed Count 4 is identical to application claim 207. Claim 207 is an independent claim that places in independent format subject matter like that presented in previously filed claims 58 and 104. The count corresponds to claim 30 of the '252 patent except that count 4 is in method format.

Count 4 is analogous to count 1 but recites the additional limitations that the primary bore has a casing, and the steps of forming an opening in the casing at the site of the intersection between the primary borehole and the branch borehole and delivering a cementitious slurry at the juncture between the tubular member and primary borehole. The claimed combination as a whole, including these added limitations, renders count 4 patentably distinct from the other counts.

Applicant suggests that claim 30 of the '252 patent, claim 8 of the '127 patent, and claims 207 and 209 of this application correspond to count 4.

## 2. Proposed Alternative Count

Applicant recognizes that the language and format of method claim 8 of the '127 patent is not identical to those in the '252 patent and this application. Applicant also recognizes that certain of the corresponding claims are "well" claims, as opposed to "method" claims. Specifically, claim 30 of the '252 patent is a well claim. If the Examiner for any reason concludes that the broadest corresponding method claim in the '127 patent and/or the broadest

corresponding well claim is not of the same or similar scope as proposed method count 4, Applicant suggests the alternative count 4 set forth at Appendix C, combining method claim 207 of this application, method claim 8 of the '127 patent (in independent format), and well claim 30 of the '252 patent (in independent format).

E. Count 5

1. Proposed Count

Proposed count 5 is reproduced below:

A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and yet permits communication of a region in the primary borehole above the tubular member with a region in the primary borehole below the tubular member and wherein a second portion of said tubular member resides in said branch borehole;

wherein said step of installing said tubular member includes the steps of

positioning a diverter at the entrance to said branch borehole, said diverter closing the primary borehole and including a portion for catching sealing material;

diverting said second portion of said tubular member into said branch borehole using said diverter; and

applying sealing material to said intersection; and

removing at least a section of said first portion of said tubular member and at least a part of said diverter to reopen said primary borehole.

Count 5 is identical to application claim 208. Claim 208 is an independent claim that places in independent method claim format the general subject matter of previously filed application claim 38. Claim 38 corresponds to claim 36 of the '252 patent.

Count 5 is analogous to count 1 but recites the additional limitations that the tubular member permits a region in the primary borehole above the tubular member to communicate

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with a region in the primary borehole below the tubular member and the additional steps of positioning a diverter at the entrance to the branch borehole, the diverter including at least a portion for catching sealing material, diverting the second portion of the tubular member into the branch borehole using the diverter, and applying sealing material to the intersection between the primary and branch boreholes. The claimed combination as a whole, including these added limitations, renders count 5 patentably distinct over the other counts.

Applicant suggests that claim 36 of the '252 patent and claims 38 and 208 of this application correspond to count 5.

## 2. Proposed Alternative Count

Again, Applicant recognizes that certain of the corresponding claims are "well" claims, as opposed to "method" claims. Specifically, claim 36 of the '252 patent and application claim 38 are well claims. If the Examiner for any reason concludes that the broadest well claim is not the same or similar scope of the proposed method count 7, Applicant suggests alternative count 5 set forth at Appendix C, combining method claim 208 of this application and claim 36 of the '252 patent (in independent format).

### F. Count 6

Proposed count 6 is reproduced below:

A method for sealing the junction between a branch wellbore and a parent wellbore comprising:

- (a) installing a tubular member having a premachined window therein such that said premachined window is aligned with said branch borehole;
- (b) running through said premachined window a pipe having a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; and
- (c) urging said flange against a periphery of said premachined window.

Proposed count 6 is identical to claim 210 of this application and similar to claim 21 of the '987 patent. Claim 210 corresponds to application claim 175 without the language concerning sealing the flange with the periphery of the window. The claimed combination as a whole renders count 6 patentably distinct from the other counts.

Applicant suggests that claims 1-3, 17, 19, and 21-30 of the '987 patent and application claims 175-177, 204, and 210 correspond to count 6. Because all of these claims are method claims, Applicant does not suggest any alternative count in Appendix C.

G. Count 7

1. Proposed Count

Proposed count 7 is reproduced below:

A method of sealing the intersection between a first borehole and a second borehole extending from said first borehole comprising the steps of:

running into the first borehole a housing and tubular member assembly, said housing having a window and said tubular member including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said tubular member substantially within said housing during run in; and

aligning said window of said housing with said second borehole and moving said tubular member from the run in position to a deployed position wherein said flange is mated against said periphery of said window.

Count 7 is identical to application claim 200. Claim 200 corresponds to claim 4 of the '987 patent but is in method format, recites a tubular member rather than a production pipe, and does not expressly recite a window in the first borehole.

This count includes a number of limitations not found in any of the other counts. For example, this count includes the steps of running into the first borehole a housing and tubular member assembly, maintaining the tubular member substantially within the housing during run

in, and moving the tubular member from the run in position to a deployed position wherein a flange on the tubular member is mated against the periphery of the window. The claimed combination as a whole, including these limitations, renders count 7 patentably distinct from the other counts.

Applicant suggests that claims 4, 8-16, 18, and 20 of the '987 patent and claims 198, 200, 202, 203, and 211 of this application correspond to count 7.

2. Proposed Alternative Count

Applicant recognizes that corresponding application claim 200 is a method claim while the corresponding claims of the '987 patent are "system" claims. If the Examiner for any reason concludes that the broadest system claim is not the same or similar scope as the proposed method count 7, Applicant suggests the alternative count 7 set forth at Appendix C, combining method claim 200 of this application and system claim 4 of the '987 patent.

H. Count 8

1. Proposed Count

Proposed count 8 is reproduced below:

A method of sealing the intersection between a first borehole and a second borehole extending from said first borehole comprising the steps of:

running into the first borehole a housing and tubular member assembly, said housing having a window and said tubular member including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said tubular member substantially within said housing during run in;

aligning said window of said housing with said second borehole and moving said tubular member from the run in position to a deployed position wherein said flange is mated against said periphery of said window; and

urging said flange against a periphery of said window.



Count 8 is identical to application claim 201. Claim 201 is analogous to claims 5-7 of the '987 patent but is in method format, recites a tubular member rather than a production pipe, and does not expressly recite a window in the first borehole.

Count 8 is analogous to count 7 but requires the additional step of urging the flange against a periphery of said window. The claimed combination as a whole, including this added limitation, renders count 8 patentably distinct over the other counts.

Applicant suggests that claims 5-7 of the '987 patent and claims 199, 201, and 212 of this application correspond to count 8.

## 2. Proposed Alternative Count

Applicant recognizes that corresponding application claim 201 is a method claim while the corresponding claims of the '987 patent are "system" claims. If the Examiner for any reason concludes that the broadest system claim is not of the same or similar scope as the proposed method count 8, Applicant suggests the alternative count 8 set forth in Appendix C, combining method claim 201 of this application and system claim 5 of the '987 patent (in independent format).

## VIII. SUMMARY TABLE OF INTERFERENCE COUNTS AND CORRESPONDING CLAIMS

The following table is provided to assist the Examiner in correlating the proposed interference counts to the claims in the '252, '127, and '987 patents and in this reissue application:

<u>Count</u>	<u>'252 Claims</u>	<u>'127 Claims</u>	<u>Application Claims</u>
1	1, 3-10, 12-23, 25-28, 31-35, 38, and 40		8, 9, 11-16, 18, 21-24 26-29, 31-33, 35, 37, 39 120, and 123
2	2, 24, 37, and 39	1-7 and 9-18	10, 25, 126-128, and 205
3	11 and 29		19, 36, 124, and 206
4	30	8	207 and 209
5	36		38 and 208

<u>Count</u>	<u>'987 Claims</u>	<u>Application Claims</u>
6	1-3, 17, 19, and 21-30	175-177, 204, and 210
7	4, 8-16, 18, and 20	198, 200, 202, 203, 211
8	5-7	199, 201, 212

# IX. THE REQUIREMENTS OF 35 U.S.C. § 135(B) HAVE BEEN MET

## A. Overview

Under 35 U.S.C. § 135(b), a party may institute an interference whenever an application claim, that is the same or substantially the same subject matter as a claim in the issued patent, was made prior to one year from the date the patent was granted. As long as any such claim is presented in an application within that time, there is no violation of the one-year rule. *Bowen v. Bihlmaner*, 231 USPQ 662, 665 (BPAI 1996); *Pizzsiro v. Pfund*, 1 USPQ2d 1056, 1061 (BPAI 1984). It does not matter whether such a claim, or claims, were canceled, either before or after the issuance of the patent. *Tezuka v. Wilson*, 224 USPQ 1030, 1036 (BPAI 1984). The statute is

drawn to claimed subject matter, not specific counts, which need not be the same. *Kondo v. Martel*, 220 USPQ 42, 49 (BPAI 1983).

B. The '252 Patent

Claims that correspond to the respective counts 1-5 for the interference with the '252 patent were presented on May 22, 1997, within one year of the May 28, 1996 issue date of the '252 patent, and are directed to substantially the same subject matter as corresponding claims in the '252 patent.

C. The '127 Patent

During the prosecution of his original '120 patent, *pro se* Applicant Michel Gondouin presented application claims that claimed the same, or substantially the same, subject matter as counts 2 and 4 and respective corresponding claims in this interference. For example, the prior application claims (quoted at Appendix H) were presented well before the applicable time limit of Section 135(b)--one year after the June 21, 1994 issue date of the '127 patent.

An interference between an applicant and a patentee is appropriate whenever the applicant presents in its application a claim "for the same or substantially the same subject matter" within one year of issuance of a patent. 35 U.S.C. § 135(b). The PTO interference rules define the "same patentable invention" as follows:

Invention "A" is the "same patentable invention" as an invention "B" when invention "A" is the same as (35 U.S.C. 102) or is obvious (35 U.S.C. 103) in view of invention "B" assuming invention "B" is prior art with respect to invention "A." Invention "A" is a "separate patentable invention" with respect to invention "B" when invention "A" is new (35 U.S.C. 102) and non-obvious (35 U.S.C. 103) in view of invention "B" assuming invention "B" is prior art with respect to invention "A."

37 C.F.R. § 1.601(n). See also M.P.E.P. § 2306.

As explained more fully below, Applicant has the right to rely upon his prior application claims, or even groups of those claims, to establish compliance with 35 U.S.C. § 135(b). M.P.E.P. § 2307. This is true even if the prior application claims were canceled and even if the prior application claims do not contain each and every limitation contained in the claims in the interference. As long as the subject matter of these timely-filed prior application claims anticipates the claimed subject matter in the interference or renders that subject matter obvious (alone or in combination with other art or ordinary skill in the art), the requirements of 35 U.S.C. § 135(b) have been met.

There are a number of prior application claims presented during the original prosecution that Applicant can rely upon to satisfy the time requirement of 35 U.S.C. § 135(b). *Pro se* Applicant Michel Gondouin first filed his application on December 30, 1991 with several originally filed claims according to PTO records.<sup>7</sup> Applicant later added claims 25 through 42 through an amendment first filed on June 11, 1993 and again on July 14, 1993 (due to missing or lost pages). Additional claims 43 through 52 were submitted on October 26, 1993. Applicant later presented claims 53 through 62 to the Examiner during an interview and thereafter through a facsimile filing on February 4, 1994, and a paper filed on or around February 26, 1994. Applicant reserves the right to rely upon any and all of these prior application claims to establish compliance with the time limitations of Section 135(b).

By means of example only and without waiver of the right to rely upon other prior application claims, Applicant submits that at least application claims 31, 39, 40, and 44 provide

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<sup>7</sup>In accordance with the PTO Decision of October 8, 1999, Applicant is not relying upon the claims, or portion of claims, at pages 42-44 of the originally filed application.

Section 135(b) support for the inventions of counts 2 and 4, the counts to which claims in the '127 patent correspond. These prior application claims, and the claims from which they depended, are set forth at Appendix H. The claims are identical to claims that were presented to the PTO through amendments, each amendment having an effective date well before June of 1995. All of these claims were prepared and filed by the individual inventor Michel Gondouin *pro se*.

Each of the prior application claims 31, 39, and 40 depended from claim 28, which in turn depended from either claim 25 or claim 26. The respective claims 31, 39, and 40 thus included all of the limitations presented in a number of combination of the claims (i.e., 25, 28, and 31; 26, 28, and 31; 25, 28, and 39; 26, 28, and 39; 25, 28, and 40; or 26, 28, and 40).

Application claim 44 depended from application claim 43.

A comparison of the language of these prior claims (reproduced at Appendix H and including the underlined portions of the respective claims) with the proposed counts (reproduced at Appendices B and C), readily shows that these timely filed application claims either anticipate or render obvious the subject matter of the respective counts and corresponding claims. These application claims contain all of the material limitations in the claims that constitute the counts, the test set forth at M.P.E.P. § 2307. The fact that these prior application claims also contain additional elements and limitations does not negatively affect the fact that these claims either anticipate or render obvious the subject matter of the claims in the interference and are directed to the same or substantially the same subject matter as the counts, and the corresponding claims. Therefore, the requirements of Section 135(b) have been met.

Faced with factually analogous circumstances, the courts and the Board of Patent Appeals and Interferences have uniformly held that an applicant, like Applicant Gondouin, could properly pursue an interference with an opponent's patent (like the '127 patent) by relying upon application or patent claims filed within the one year limit of Section 135(b).

One particularly analogous case is *Stalego v. Heymes*, 263 F.2d 334, 129 U.S.P.Q. 473 (CCPA 1959) (cited at M.P.E.P. § 2307). In that case, Heymes filed a reissue application and copied claims from Stalego's patent more than a year after the interference patent's issue date. Heymes became the Senior Party and was ultimately awarded priority of invention. On appeal, Stalego urged that Heymes failed to comply with the requirements of 35 U.S.C. § 135(b), because the timely filed claim Heymes relied upon was not identical to the later copied claims. The Primary Examiner, the Board, and the Court of Customs and Patent Appeals (CCPA) each disagreed and held that Heymes could rely upon his earlier application claim. Ultimately, the CCPA held that Heymes's earlier claim 1 met the requirements of 35 U.S.C. § 135(b), even though that claim did not include each and every limitation in the counts (and copied claims) in the interference. In reaching that conclusion, the CCPA explained that to determine compliance with Section 135(b), "it is necessary to distinguish between those limitations which relate to the essence of the claimed subject matter and those which do not." 263 F.2d at 339. Noting that Stalego had not established priority of invention and therefore hoped to prevail purely on the technicality of an estoppel under Section 135(b), the CCPA succinctly explained, "Such an award should not be made unless the circumstances clearly require it." *Id.* at 339 (emphasis added).

Under the test set forth in *Stalego*, Applicant submits that the circumstances in this case do not require – and indeed do not permit – a technical estoppel award against him. Instead, Applicant is entitled to pursue on the merits an interference and prove priority of his invention over that of the '252 and '127 patents.

In several other cases, the CCPA similarly concluded that the requirements of Section 135(b) had been met when an applicant copied claims from a patent after a year had passed but relied upon previously and timely filed claims. *See Wetmore v. Miller*, 477 F.2d 960 177 U.S.P.Q. 699 (CCPA 1973) (Applicant, who copied claims from a patent after the one year period, could rely upon claims that had been pending in the application within the one year period); *Rieser v. Williams*, 255 F.2d 419, 118 U.S.P.Q. 96 (CCPA 1958) (Williams's application claim 6 defined substantially the same subject matter as the later copied claim from the Rieser patent, even though claim 6 did not expressly include each limitation in the copied claims. The additional limitations in the copied claims were of no patentable significance, but rather were obvious, equivalent, or inherent features); *Cryns v. Musher*, 161 F.2d 217, 73 U.S.P.Q. 290 (CCPA 1947) (reversing the Board's application of a Section 135(b) estoppel); *Thompson v. Hamilton*, 152 F.2d 994, 68 U.S.P.Q. 161 (CCPA 1946) (Hamilton's prior application claims presented subject matter substantially the same as the later copied patent claims).

The Board has similarly found that where a claim, or group of claims, contained in an application prior to one year from the patent issue date are drawn to the same subject matter as the actual claims in the interference, there is no violation of the one-year rule of Section 135(b). *See Pizzsuro v. Pfund*, 1 U.S.P.Q.2d 1056, 1061 (BPAI 1994) (Pfund's original application

claims 1 and 12 included the material limitations of the later copied claim from the Pizzsuro patent); *Bowen v. Bihlmaier*, 231 U.S.P.Q. 662, 665 (BPAI 1986) (Bihlmaier was not barred from copying claims from the Bowen patent more than 21 months after issuance, where an earlier application claim was directed to the same patentable invention); *Tezuka v. Wilson*, 224 U.S.P.Q. 1030, 1036 (BPAI 1984) (Wilson's original parent application claims 24-30 were directed to the same subject matter as the later copied claims); *Kondo v. Martel*, 220 U.S.P.Q. 47, 49 (BPAI 1983) (Kondo's earlier application claims included the subject matter of the later copied claims).

When compliance with Section 135(b) is considered, it does not matter whether the prior application claim or claims were later canceled, either before or after the issuance of the patent. *Corbett v. Chisholm*, 568 F.2d 759, 765, 196 U.S.P.Q. 337, 342 (CCPA 1977); *Tezuka*, 224 U.S.P.Q. at 1036. It is also not necessary for the Applicant to have presented a single claim embodying every limitation of the copied claims. Indeed, a group of claims can be considered. See *Thompson*, 152 F.2d at 996, 68 U.S.P.Q. at 735; *Pizzsuro*, 1 U.S.P.Q.2d at 1063.

In summary, Applicant's timely filed application claims (reproduced at Appendix H) are directed to the same patentable inventions as claims corresponding to the respective counts. The requirements of Section 135(b) thus have been met.

D. The '987 Patent

The one year period from issuance of the Forsyth patent expired on August 4, 1999. Applicant filed the claims corresponding to the respective counts before that date and therefore has met the requirements of 35 U.S.C. § 135(b). Specifically, claims 175-177 were filed on October 21, 1998, and claims 198-204 were filed on August 3, 1999.

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X. APPLICANT SHOULD BE DECLARED THE SENIOR PARTY IN THE INTERFERENCE

As described above, Applicant has been granted the benefit of a filing date of December 30, 1991. Applicant therefore should be designated as senior party in the interference with the '252, '127, and '987 patents.

XI. SUMMARY

Applicant respectfully requests that an interference be declared with the proposed eight (8) counts set forth in Attachment B and the corresponding claims identified above.

Accordingly, Applicant requests that the Examiner:

(1) Prepare and transmit Form PTO-850 (completed sample enclosed as Appendix I), recommending that the Administrative Patent Judge institute an interference between the present reissue application and the '252, '127, and '987 patents;

(2) Propose the counts and designate the corresponding application and patent claims set forth in this Request; and

(3) On Form PTO-850, indicate Applicant's entitlement to the benefit of an invention date of December 30, 1991 for the proposed counts and designate Applicant as the senior party for each count.

If an interview with the Examiner or any additional information or assistance from Applicant would expedite the prosecution of this reissue application and the initiation of an interference, the undersigned would welcome a telephone call to discuss the case or schedule an interview at the Examiner's earliest convenience.

The Commissioner is hereby authorized to charge any necessary fees associated with this filing to Deposit Account No. 06-0916. If a fee is required for an extension of time not accounted for, Applicant petitions for such an extension and requests that the extension fee also be charged to our Deposit Account No. 06-0916.

Respectfully submitted,

Date: March 7, 2000

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

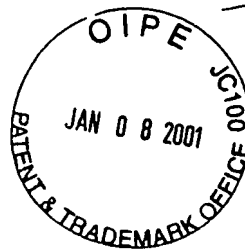
In re Application for Reissue  
of U.S. patent No. 5,462,120

Inventor: Michel Gondouin

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS  
AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED  
MULTIPLE DRAINHOLES



Group Art Unit: 3625

Examiner: H. Dang

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Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

**SUPPLEMENT TO AMENDMENT D**

In reply to the Office Action mailed on December 7, 2000, setting a shortened statutory period of one month, please amend the application as follows:

**IN THE CLAIMS:**

Please amend claim 223 as follows:

18/ ~~223~~ (Amended). The method of Claim ~~222~~ wherein said tubular member is a liner.

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## REMARKS

This Supplement to Amendment D is being filed in response to the Office Action of December 7, 2000, providing Applicant one month to submit a supplemental paper correcting certain alleged defects in the manner in which this reissue application was amended in Amendment D.

The Examiner in the Office Action expressed the view that Amendment D did not comply with certain provisions of Rule 121 and also suggested that Applicant amend claim 223 and submit proposed changes to the drawings "to expedite prosecution of this reissue application." Applicant appreciates the thoroughness of the Examiner's action and the Examiner's desire to expedite the prosecution of this applicant. It appears that the Examiner has concluded that the pending claims and the application are in condition for allowance, once these matters of form are resolved to his satisfaction. Applicant shares the Examiner's desire to conclude this prosecution as quickly as possible.

Applicant originally filed Amendment D on October 18, 2000. In this Supplement, Applicant has amended claim 223 as suggested by the Examiner, correcting a typographical error to indicate that it is dependent from claim 222. In addition, Applicant has provided additional information requested by the Examiner. Applicant also stands ready to promptly file proposed amendments to the drawings, once the other matters are resolved.

In the December 7, 2000, Office Action the Examiner expressed the view that Amendment D did not comply with 37 CFR § 1.21(b)(2)(ii) because it did not set forth the status of all patent claims and of all added claims as of the date of submission. Applicant respectfully

submits that Amendment D did so provide the status of all claims in the application. For example, at page 9 of Amendment D, Applicant stated that he had "cancelled each of the pending claims, except original claims 1-7, and has added new claims 213-251." Nonetheless, Applicant hereby advises that original claims 1-7 are pending in this reissue application. In addition, during the prosecution of this application Applicant has added claims 8-251, of which claims 8-212 are canceled and claims 213-251 are pending. As a result, as of the date of submission of Amendment D, patent claims 1-7 and application claims 213-251 are pending, and claims 8-212 are cancelled.

In the Office Action, the Examiner also expressed the view that Amendment D was not accompanied by an explanation of the support for the Amendment with any additional comments on paper separate from pages containing the amendment. Applicant, respectfully, does not understand the objection and submits that he has fully complied with Rule 121. 37 C.F.R. § 1.121(b)(2)(iii), provides that each "amendment when originally submitted must be accompanied by an explanation of the support in the disclosure of the patent for the amendment along with any additional comments on page(s) separate from the amendment page(s) containing the amendment." Amendment D, Applicant explained the basis for support for each claim added at pages 10-15, as well as in the separate declaration of Mr. Macrae. As Applicant explained, the subject matter of certain claims had been submitted and support explained previously. Moreover, Applicant provided these explanations on separate pages from the pages of the amendment presenting the claims.

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While Applicant believes that he has fully complied with Rule 121, in order to facilitate prosecution of this application, Applicant sets forth in more detail below a further explanation of support for the pending claims. This explanation is a supplement to the original explanation previously submitted.

So that there are no further misunderstandings regarding compliance with Rule 121, Applicant respectfully notes that there is no requirement that this support be provided by way of separate claim chart. Rule 121 only requires that it be on a separate page, as were Applicant's original remarks and the following remarks. Consistent with Applicant's Amendments, including Amendment D, the MPEP instructs that the amendment merely "must be accompanied by an explanation of the support in the disclosure of the patent for the amendment." MPEP § 2250(I)(B).

Applicant discloses a method of forming or sealing the intersection between a primary borehole having a casing and a branch borehole, including the steps of forming an opening in the casing at the site of the intersection between the primary borehole and the branch borehole to be formed; installing a tubular member through said opening at the intersection of said primary and branch boreholes, wherein a first portion of said tubular member resides in said cased primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and removing at least a section of said first portion of said tubular member as claimed in independent claims 213, 222, and 243. As Applicant explained, independent claims 213, 222, and 243 have similar subject matter as previous application claims 8, 9, and 25, although the words and scope are not identical. As Applicant has also explained, the embodiments of Cases,

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3, 4, and 4a describe all of the steps recited in independent claims 213, 222, and 243. *See, e.g.,* 7:25-8:30; 8:47- 9:27; 16:11-44. *See also* Declaration of Macrae. Applicant describes that the tubular member may be a liner as claimed in claim 223. *See, e.g.,* 7:64-67; 8:54-57; 16:28-31.

Applicant notes that during the prosecution of the application, the support of the claims has been described in considerable detail in several papers files with this Office. For example, and as explained in Amendment D, the subject matter of many of the dependent claims corresponds to claims previously pending in this application that the Examiner previously found supported. Specifically, claims 223, 224, 225, 226, 227, 228, 229, 230, 234, 235, 236, 237, 238, contain the same or similar subject matter as canceled application claims 9, 11, 12, 13, 14, 15, 16, 18, 21, 22, 24, 27, and 120. Similarly, claims 221, 231, and 245 contain similar subject matter as canceled application claim 19. In addition, claims 244 and 246 contain similar subject matter as in various canceled application claims, such as claims 12 and 18. While the scope of these claims are not identical, they are similar.

As Applicant described in connection with these prior claims previously found supported, Applicant discloses a well having a primary borehole intersecting with a branch borehole sealed in accordance with the above described method as claimed in claim 237. Applicant also discloses repeating the steps of independent claim 222 for at least one second branch borehole, as claimed in dependent claim 235. *See, e.g.,* 2:66-3; 9:26-27, 67; 10:1-4; 16:45-48.

Applicant further discloses using a diverter, including a whipstock packer assembly, and positioning the diverter at the entrance to the branch borehole and diverting the tubular member into the branch hole using the diverter as claimed in claims 225, 229, 238, 244 and 246. *See,*

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*e.g.*, 7:48-59, 56-67; 8:62-9:10; 10:4-7; 16:28-31. Still further, Applicant discloses removing the diverter as claimed in claims 230 and 246, and repositioning it for selective reentry as claimed in claim 236. *See, e.g.*, 7:49-50; 8:21-27; 9:12-16, 26-27; 10:1-7; 16:41-48; 2:66-3:4.

In addition, Applicant discloses providing a diverter with a removable portion and removing the portion during reopening as claimed in claims 226, 227, and 228. For example, in case 3 an "intermediate liner" is run in through the window and cemented, and the liner is equipped with an elliptical collar made of drillable metal. The diverter includes a drillable whipstock packer 31 and a retrievable whipstock 32, both of which are illustrated in Figs. 3b and 11. *See, e.g.* 7:48-53; 9:67-10:14; 17:12-21. The specification explains that after the cement is set and the cementing string has been pulled out, the whipstock is pulled out and the supporting whipstock packer 31 is also drilled out and pulled out. *See, e.g.*, 8: 21-28. In addition, in the first embodiments of case 4 (Fig. 4) and case 4a (Fig. 10), the diverter is in the form of two tubular guides or cages 41 and 42 made of drillable metal. These tubular guides or cages support and direct "liner stubs" 39 which are extended. The patent teaches that drillable guides or cages are drilled out after the cement is set. *See, e.g.*, 16: 41-44. Thus, Applicant discloses a diverter with a removable portion, which can comprise a whipstock, and removing, such as through milling, the portion during reopening of the primary borehole as claimed in claims 226, 227, and 228.

Applicant also discloses delivering a cementitious slurry at the intersection and about the tubular member as claimed in claims 231 and 245. In the completion of the embodiments of cases 4 and 4a, *see, e.g.*, Figs. 4 and 10, cement fills the under-reamed portion and is positioned,

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among other locations, at the intersection and about the liner stub. *See, e.g.*, 8:57-59. In the embodiments of case 3, the tubular member liner is cemented pursuant to a technique disclosed in case 2 and Fig. 2A, wherein cement is applied to seal the intermediate liner and the primary casing. *See, e.g.*, 7:61-63; 8:11-20; 16: 20-28. Case 3 references a cementing technique with a tail pipe and cup-type packer disclosed in case 2. *See, e.g.* 8:11-15. As explained, cement is injected behind the liners, to tie in and seal the intermediate liners to the primary casing. *See, e.g.*, 6:16-28. Thus, in each of these embodiments a cementitious slurry is delivered at the intersection.

Further, Applicant discloses effecting communication from the interior of the liner to the surface of the primary wellbore, with the communication being effected using at least one connector extending with the casing as claimed in claim 234. *See, e.g.*, 7:2-23; 8:39-43; 9:28-66; 10:29-52; 16:52-53.

The remaining dependant claims contain subject matter that is likewise supported by Applicant's disclosure. For instance, Applicant discloses drilling a branch borehole through the opening as claimed in claims 214 and 232. *See, e.g.*, 7:56-57, 64-65; 8:54-57; 9:13-19. Applicant discloses providing a full bore opening at the intersection by removing the entire first portion of the liner as claimed in claims 215, 216, 224, 233, and 247. *See, e.g.*, 8:21-30; 10:11-14; 16:41-44. Moreover the opening in the borehole allows the passage of well tools as claimed, such as well logging, perforating, cementing, and cleaning tools as claimed in claims 217, 239, 232, and 248. *See, e.g.*, 1:44-50.

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Applicant also discloses injecting steam into at least one of the primary and branch boreholes and producing oil from the one or other or both of these boreholes as claimed in claims 218, 220, 240, 242, 249 and 251. *See, e.g.*, 14: 9-12, 26-31; 15:2-7. Applicant further discloses that this oil can be pumped from at least one of the boreholes as claimed in claims 219, 241, and 250. *See, e.g.*, 14:9-12, 26-31; 15:2-7. Thus, Applicant's claims are all fully supported by his disclosure.

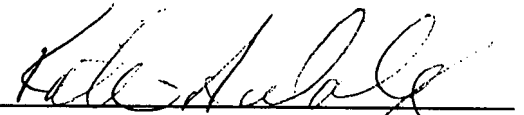
The Examiner also suggested in the December 7, 2000, Office Action that, in order to expedite prosecution, Applicant propose an amendment to Figures 4 and 10. Applicant appreciates and shares the Examiner's concern with expediting the prosecution of this application. Applicant's counsel, however, only recently received this Office Action as it took some time during the holiday season for the Office Action to be forwarded to the undersigned counsel. As a result, Applicant has not had sufficient time to consider the Examiner's suggestion and prepare appropriate proposed drawing changes. Applicant intends to promptly consider this issue and work with the Examiner to complete this matter. It appears to Applicant that this matter can be expedited through an interview with the Examiner to discuss any appropriate changes. Applicant intends to consult with the Examiner and would also appreciate receiving the Examiner's suggestions.

To the extent that the Examiner concludes that any or all of the claims are not in condition for allowance or that any other issues remain, Applicant respectfully requests that the Examiner call one of the undersigned attorneys and extend the courtesy of a telephonic or

personal interview to complete the prosecution of this application and permit the prompt issuance of the patentable claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,



Date: January 8, 2000

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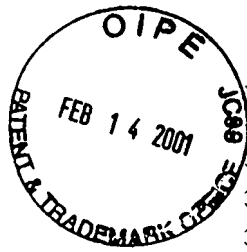
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. patent No. 5,462,120



RECEIVED

FEB 16 2001

Inventor: Michel Gondouin

Application Serial No.: 08/861,457

TQ 3600 MAIL ROOM

Reissue Filing Date: May 22, 1997

Group Art Unit: 3625

Title: DOWNHOLE EQUIPMENT, TOOLS  
AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED  
MULTIPLE DRAINHOLES

Examiner: H. Dang

Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

**SECOND SUPPLEMENT TO AMENDMENT D**

Applicant is presenting this Second Supplement To Amendment D at the Examiner's  
request in an interview held on February 7, 2001. Please amend the application as follows:

**IN THE CLAIMS:**

Please amend claims 217, 221, 239, and 248 as follows:

12/217. (Amended) The method of claim 216 wherein said opening in said liner is of  
sufficient diameter to allow the passage of well tools, for subsequent well maintenance and  
repair.

16/221. (Amended) The method of claim 214, further comprising the step of delivering a  
cementitious slurry at the intersection and about said liner.

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37

G3

~~34~~<sup>17</sup> 239. (Amended) The method of claim 222 wherein after said section of said tubular member is removed, the primary borehole is of sufficient diameter to allow the passage of well tools, for subsequent well maintenance and repair.

G4

~~43~~<sup>38</sup> 248. (Amended) The method of claim 243 wherein after said section of said tubular member is removed, the primary borehole has sufficient diameter to allow the passage of well tools, for subsequent well maintenance and repair.

38

## REMARKS

This Supplement to Amendment D is being filed in response an interview Applicant's counsel held with the Examiner on February 7, 2001, and to the Office Action of December 7, 2000. Applicant's counsel would like to thank the Examiner for the courtesy extended in the interview.

Claims 217, 239, and 248 have been amended as requested by the Examiner to avoid the use of the words "such as." In this amendment the words "such as logging, perforatory, cementing, and cleaning tools" have been deleted so that the claims recite that "the primary borehole is of sufficient diameter to allow the passage of well tools, for subsequent well maintenance and repair." The claims as amended, provide the breadth of coverage originally intended, are supported by the specification, and overcome the Examiner's objection to the phrase "such as." Claim 221 has also been amended as requested by the Examiner, replacing "tubular member" with "liner" to correct its antecedent basis.

At the interview, Applicant and the Examiner discussed the original patent disclosure and drawings, and during the interview Applicant presented proposed drawings changes, as the Examiner had requested in the December 7, 2000, Office Action. These proposed drawings were attached to the Interview Summary. As the Examiner acknowledged in the Interview Summary, the proposed changes to the drawings are supported by Applicant's disclosure. Applicant fully describes the operation of liner stubs (39) and the inner and outer guides (42) and (41). *See, e.g.,* 7:67; 8:1-11, 54-67; 9:1-19; 16:17-44; Fig. 3A.

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For instance, Applicant describes how the liner stubs are supported during run-in and guided during its outward expansion by inner guides and outer guides. *See, e.g.*, 8:62-64; 16:28-31. Applicant describes that the outer guide (41) is fixed to the casing and the inner guide (42) is mobile and slides within the fixed guide over only half of the stub (39) extension, while providing a cantilevered sliding internal support to the extended stub. *See, e.g.*, 8:64-67; 9:1; 16:28-31. Applicant also describes that the liner stub has drillable collar (35) and gasket (36), *see, e.g.*, 9:1-2; 16:17-23, 41-43, which he further describes in reference to Case 3 and shows in Fig. 3A. *See, e.g.*, Fig. 3A; 7:67; 8:1:-11. Applicant explains that the liner stub and the collar are machined to conform with the window. *See, e.g.*, 9:8-10. This description, as well as other portions of Applicant's disclosure, fully supports Applicant's proposed drawing changes.

Applicant is formally submitting the proposed drawing changes in the accompanying Request for Approval of Drawing Change. These drawings are the same as the drawings considered during the Interview that the Examiner agreed were supported by the Applicant's disclosure, except that the word "Amended" appears with the figure number. Applicant submits that these proposed drawings fully comply with the Office's Rules and the MPEP.

The MPEP instructs that the "provisions of 37 CFR § 1.121(b)(3) govern the manner of making amendments to the drawings in a reissue application." MPEP § 1413. According to 37 CFR § 1.121, "[a]ny change to the patent drawings must be by way of a new sheet of drawings with the figures identified as 'amended.'" § 1.21(b)(3)(i). Section 1.121 further explains "where a change to the drawing is desired, a sketch in permanent ink showing proposed changes in red" must be filed. § 1.21(b)(3)(ii).

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Applicant's proposed changes have been submitted on new sheets of drawings with Figs. 4 and 10 identified as "amended." Further, Applicant's submission constitutes a sketch in permanent ink and the proposed changes have been shown in red. Thus, Applicant's proposed drawing changes fully comply with the Rules. Since these changes are fully supported by Applicant's disclosure as discussed above, Applicant respectfully requests approval of these changes. Upon receiving approval, Applicant will submit formal drawings.

Applicant believes that this Second Supplement to Amendment D resolves all remaining issues so that this application is in condition for allowance. During the interview Applicant and the Examiner discussed the status of the case, and Applicant understood that the presentation of the above amendments to the claims and the drawings would resolved all outstanding issues and place the case in condition for allowance, subject to the Examiner's right to finally review the case.

Because it appears that this case is in condition for allowance and no further amendments are needed, Applicant is submitting a Supplemental Reissue Declaration of Michel Gondouin.

To the extent the Examiner concludes that any or all of the claims are not in condition for allowance or that any other issues remain, Applicant respectfully requests that the Examiner call one of the undersigned attorneys and extend the courtesy of a telephonic or personal interview to complete the prosecution of this application and permit the prompt issuance of the patentable claims.

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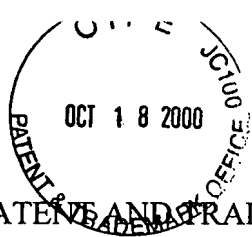
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

Date: February 14, 2001

  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. patent No. 5,462,120

Inventor: Michel Gondouin

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS  
AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED  
MULTIPLE DRAINHOLES

Group Art Unit: 3625

Examiner: H. Dang

# 298  
E. H. H. H.  
10/31/00

Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

**AMENDMENT D**

In reply to the Office Action mailed on April 18, 2000, the period for reply having been extended for three months by a petition for extension of time and fee payment filed concurrently herewith, please amend the application as follows:

**IN THE FILING DATE:**

With respect to the filing date, please amend the INID code [22] as follows:

[Filed: Jan. 4, 1993] Filed: Dec. 30, 1991.

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**IN THE CLAIMS:**

Cancel claims 8-16, 18, 19, 21-29, 31-33, 35-39, 120, 123, 124, 126-128, 175-177, and 198-212 and add claims 213-251 as follows:

8 ~~213~~. A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a casing in said primary borehole, said casing having an opening therethrough at the intersection of said primary borehole and a branch borehole to be formed;

installing a liner at the intersection of said primary borehole and branch borehole wherein a first portion of said liner resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said liner extends through said opening and into said branch borehole;

removing at least a section of said first portion of said liner to reopen said blocked primary borehole.

9 ~~214~~. The methods of claim ~~213~~ further comprising the steps of drilling said branch borehole through said opening.

10 ~~215~~. The method of claim ~~214~~ further comprising the step of removing the entire first portion of said liner in the primary borehole to reopen the primary borehole to its full bore at the intersection.

11 ~~216~~. The method of claim ~~215~~ further comprising the step of providing a full bore opening in said liner at said intersection.

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Sub G1

~~217.~~ The method of claim 216 wherein ~~said opening in said liner~~ is of sufficient diameter to allow the passage of well tools, such as well logging, perforating, cementing, and cleaning tools, for subsequent well maintenance and repair.

~~13/218.~~ The method of claim ~~213~~ further comprising the step of injecting steam into at least one of said primary and branch boreholes and producing oil from one or both of said boreholes.

~~14/219.~~ The method of claim ~~218~~ further comprising the step of pumping oil from at least one of said boreholes to the surface.

~~15/220.~~ The method of claim ~~218~~ wherein steam is injected into one of said boreholes while oil is produced in the other.

E1 Sub G2 ~~221.~~ The method of claim 214, further comprising the step of delivering a cementitious slurry at the intersection and about said tubular member.

~~17/222.~~ A method of sealing the intersection between a primary borehole having casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

drilling said branch borehole;

installing a tubular member through said opening at the intersection of said primary and branch boreholes, wherein a first portion of said tubular member resides in said

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cased primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member.

~~223.~~ <sup>19</sup> The method of Claim 22 wherein said tubular member is a liner.

~~224.~~ <sup>18</sup> The method of Claim 223 including:

redrilling the primary borehole to reopen the primary borehole.

~~225.~~ <sup>17</sup> The method of Claim 222 including the step of:

positioning a diverter at the entrance to said branch borehole; and

diverting said second portion of said tubular member into said branch borehole

using said diverter.

~~226.~~ <sup>19</sup> The method of claim 224, including the step of:

providing said diverter with a removable portion; and removing said portion

during reopening of the primary borehole.

~~227.~~ <sup>21</sup> The method of claim 226 including:

milling said section and said removable portion of said diverter to effect their

removal.

~~228.~~ <sup>21</sup> The method of claim 226 wherein:

said removable portion of said diverter comprises a whipstock.

~~229.~~ <sup>20</sup> The method of claim 225 wherein:

said diverter comprises a whipstock packer assembly.

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~~25~~ ~~230~~ <sup>20</sup> The method of claim ~~223~~ including the step of:  
removing said diverter from said primary borehole.

~~26~~ ~~231~~ <sup>17</sup> The method of claim ~~222~~ further comprising the step of:  
delivering a cementitious slurry at the intersection and about said tubular member.

~~27~~ ~~232~~ <sup>26</sup> The method of claim ~~231~~ wherein the step of drilling said branch borehole  
comprises drilling said branch borehole through said opening.

~~28~~ ~~233~~ <sup>26</sup> The method of claim ~~231~~ wherein the step of removing comprises removing the  
entire first portion of said tubular member in the primary borehole to reopen the primary  
borehole to its full bore at the intersection.

~~29~~ ~~234~~ <sup>18</sup> The method of claim ~~223~~ including the steps of:  
effecting communication from the interior of said liner to the surface of said  
primary wellbore, said communication being effected using at least one connector extending  
within said casing.

~~30~~ ~~235~~ <sup>17</sup> The method of claim ~~222~~ wherein:  
the steps are repeated for at least one second branch borehole.

~~31~~ ~~236~~ <sup>20</sup> The method of claim ~~223~~ including:  
repositioning said diverter for selective reentry into a different branch borehole.

~~32~~ ~~237~~ <sup>17</sup> A well having a primary borehole intersecting with a branch borehole, the  
intersection being sealed in accordance with the method of claim ~~222~~.

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33 238. The method of claim 233, further comprising the steps of positioning a diverter at the entrance to said branch; and diverting said second portion of said tubular member into said branch borehole using said diverter.

SUBG3 239. The method of claim 222 wherein after said section of said tubular member is removed, the primary borehole is of sufficient diameter to allow the passage of well tools, such as well logging, perforating, cementing, and cleaning tools, for subsequent well maintenance and repair.

E 35 240. The method of claim 238 further comprising the step of injecting steam into at least one of said primary and branch boreholes and producing oil from one or both of said boreholes.

36 241. The method of claim 240 further comprising the step of pumping oil from at least one of said boreholes to the surface.

37 242. The method of claim 240 wherein steam is injected into one of said boreholes while oil is produced in the other.

38 243. A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

subsequently drilling said branch borehole;

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subsequently installing a tubular member through said opening at the intersection  
of said primary and branch boreholes, wherein a first portion of said tubular member resides in  
said primary borehole having casing and wherein a second portion of said tubular member  
resides in said branch borehole; and

subsequently removing at least a section of said first portion of said tubular  
member.

39/ 244. The method of claim 243 further comprising the step of installing a diverter  
proximate the intersection and using the diverter as a guide during the drilling and the installation  
steps.

40/ 245. The method of claim 243 further comprising the step of delivering a cementitious  
slurry at the intersection and about said tubular member, after installing the tubular member.

41/ 246. The method of claim 244 wherein said diverter includes a whipstock and further  
comprising the step of removing said whipstock during said reopening step.

42/ 247. The method of claim 245 wherein the step of removing comprises removing the  
entire first portion of said tubular member in the opening borehole to reopen the primary  
borehole to its full bore at the intersection.

Sub 47 248. The method of claim 243 wherein after said section of said tubular member is  
removed, the primary borehole has sufficient diameter to allow the passage of well tools, such as  
well logging, perforating, cementing, and cleaning tools, for subsequent well maintenance and  
repair.



44/ 38  
249. The method of claim 243 further comprising the step of injecting steam into at least one of said primary and branch boreholes and producing oil from one or both of said boreholes.

45/ 44  
250. The method of claim 249 further comprising the step of pumping oil from at least one of said boreholes to the surface.

46/ 44  
251. The method of claim 249 wherein steam is injected into one of said boreholes while oil is produced in the other.

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## REMARKS

As the Examiner is aware, Applicant in this reissue application has disclosed and claimed a wealth of novel and commercially significant inventions and has sought the declaration of an interference with certain previously issued patents. Since then, some of those previously issued patents were subject to reexamination proceedings that have led to the rejection of claims that were the subject matter of at least two of the requested interferences. In addition, prior art rejections in the most recent Office Action raise questions regarding the patentability of certain claims in the other patent that was the subject of a requested interference. At the same time, the most recent Office Action indicates that the Examiner has found certain claimed subject matter to be allowable over the art of record. In light of these circumstances, Applicant is amending the application to obtain an early allowance and issuance of the claims directed to the confirmed patentable subject matter, while preserving the right to pursue additional claims and/or interferences in continuation reissue applications.

Through this Amendment, Applicant has canceled each of the pending claims, except original claims 1-7, and has added new claims 213-251. These new claims include subject matter that the Examiner found to be patentable over the prior art of record in the last Office Action of April 18, 2000, which the Examiner confirmed during an interview on October 11, 2000. Applicant appreciates the courtesy extended by the Examiner during the interview and notes that the Interview Summary Record accurately sets forth the general scope of the interview.

Specifically, each of the new pending claims 213-251 is directed to a method of forming or sealing the intersection between a primary borehole having a casing and a branch borehole.

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The claimed method includes the steps of forming an opening in the casing at the site of the intersection between the primary borehole and the branch borehole to be formed; installing a tubular member through said opening at the intersection of said primary and branch boreholes, wherein a first portion of said tubular member resides in said cased primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and removing at least a section of said first portion of said tubular member.

In the last Office Action, the Examiner did not reject claims 25 and 127 based on prior art. Each of claims 25 and 127 included the above underlined limitation within the claimed subject matter. Thus, the prior art of record, including Russian patent no. 787611, does not teach or suggest the claimed combination. Newly added independent claim 213 includes the subject matter of previous application claims 8, 9, and 25, although the language is not absolutely identical. Each of the two remaining independent claims 222 and 243 and presented in this application include, inter alia, the above limitation. Accordingly, Applicant submits that claims 213, 222, and 243 are patentable over the prior art.

The newly added dependent claims include additional limitations which further define the various commercial applications of the inventions disclosed by Applicant. The subject matter of many of these claims corresponds to claims previously pending in this application that the Examiner previously found supported. Specifically, claims 223, 224, 225, 226, 227, 228, 229, 230,, 234, 235, 236, 237, 238, contain the same or similar subject matter as canceled application claims 9, 11, 12, 13, 14, 15, 16, 18, 21, 22, 24, 27, and 120. Similarly, claims 221, 231, and 245 contain similar subject matter as canceled application claim 19. In addition, claims 244 and 246

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contain similar subject matter as in various canceled application claims, such as claims 12 and 18. The Examiner did not reject any of these application claims in the outstanding office action as lacking support. While the scope of these claims are not identical, they are similar. Applicant submits that the subject matter of these dependent claims is fully supported by Applicant's disclosure.

The remaining dependant claims contain subject matter that is likewise supported by Applicant's disclosure. For instance, Applicant discloses drilling a branch borehole through the opening as claimed in claims 214 and 232. *See, e.g.*, Col. 7, lines 56-57, 64-65; col. 8, lines 54-57; col. 9, lines 13-19. Similarly, Applicant discloses providing a full bore opening at the intersection by removing the entire first portion of the liner, which allows the passage of well tools as claimed *inter alia* in claims 215, 216, 217, 232, 233, 247, and 248. *See, e.g.*, Col. 1, lines 44-50; col. 8, lines 21-30; col. 10, lines 11-14; col. 16, lines 41-44. Likewise, Applicant discloses injecting steam into the primary and branch boreholes and producing 0.1 from one or both of these boreholes as claimed *inter alia* in claims 218-220, 240-241, and 249-251. *See, e.g.*, Col. 14, lines 9-12, 26-31; col. 15, lines 2-7. Accordingly, Applicant submits that all dependant claims, as well as claims 213, 222, and 243 from which they depend, are fully supported by Applicant's disclosure.

In the outstanding office action, while claim 25 was not rejected over the prior art, it was rejected as being based on a defective declaration under 35 U.S.C. § 251. The Examiner indicated that a supplemental oath/declaration under 37 C.F.R. § 1.175(b)(1) would overcome this accordingly. Applicant therefore is submitting a supplemental declaration under 37 C.F.R. §

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1.175(b)(1), as suggested by the Examiner, to obviate the rejection of the claims based on a defective declaration.

In addition, Applicant has amended the filing date in the manner suggested by the Examiner.

Because independent claims 213, 221, and 243 distinguish over the prior art and are in condition for allowance, Applicant submits that the claims dependent therefrom are likewise in condition for allowance.

As the Examiner is aware, claims pending in the application at the time of the last Office Action were copied from or corresponded to claims in issued patents assigned to Baker Hughes, Inc., and Applicant had sought an interference with each of Baker Hughes's Patent Nos. 5,322,127; 5,520,252; and 5,787,987. In view of the circumstances outline below, Applicant is not in this application seeking an interference between the claims now pending in this application and the '127, '252, or '987 patents. Instead, Applicant is seeking the immediate allowance and issuance of the pending claims. The prompt issuance of a reissue patent on these claims is particularly appropriate, because the life of the reissue patent will be limited to the term of the original patent.

After Applicant filed his request for interference, reexaminations of the Baker Hughes '127 and '252 patents were instituted and the independent copied claims were rejected. Baker Hughes has filed an amendment canceling the rejected claims. In light of these circumstances, Applicant no longer seeks an interference with the '127 and '252 patent with respect to the claims now pending in this application. Applicant further notes that U.S. Patent No. 5,301,760

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(discussed at pages 13-14 of Applicant's revised Amendment C and Request for Interference) is also the subject of a reexamination proceeding in which certain claims have been rejected. As Applicant previously explained, Halliburton Energy Services (a division of Halliburton Company which owns Applicant's U.S. Patent No. 5,462,120), has an exclusive license to the '760 patent. At present, claims 1-3, 9, 10, and 12-14 in the '760 patent have been rejected. In addition, in the outstanding Office Action, the Examiner rejected several broader claims in the '987 patent based on prior art, thereby changing the circumstances relating to a potential interference between this application and the '987 patent.

In view of the above circumstances, Applicant has focused the claims of this pending application on the claims which are patentable over the prior art and which Applicant respectfully submits should be allowed and promptly issued in an issued patent, pursuant to recent Patent Office policy set forth at recently amended 37 C.F.R. § 1.777. Applicant expressly reserves the right to pursue in continuation reissue applications additional claims and/or interferences, to the full degree permitted by law. Applicant discussed this procedure with the Examiner.

Applicant further notes that the Examiner in an earlier Office Action of April 27, 1999, indicated that a number of pending claims were directed to patentable subject matter allowable over the prior art of record, including a 35 U.S.C. § 102(e) rejection based on the '252 patent. As a result, Applicant expressly reserves the right to pursue claims of the type the Examiner has already indicated are allowable, in a separate continuation/divisional application. Moreover, Applicant expressly reserves the right to present and pursue additional claims that are supported

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by his original disclosure, are directed to patentable inventions, and are permitted under the patent laws.

Finally, Applicant notes that in the last Office Action, original and previously allowed and issued claim 3 was rejected under 35 U.S.C. § 112, "as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention." Applicant respectfully traverses this rejection, submits that the Examiner and the Patent Office were correct when claim 3 was originally allowed and issued, and therefore requests the withdrawal of the rejection of claim 3.

As evidentiary support, Applicant is submitting a declaration of Mr. Colin M. Macrae, a person skilled in the art, who has reviewed the original disclosure and found that it is fully sufficient to enable one skilled in the art to make and use the invention. Applicant respectfully submits that the contrary conclusion reached in the last Office Action was based upon a misunderstanding and misinterpretation of the drawings discussed apart from the entire original disclosure. The original disclosure includes detailed written disclosures and teachings, which must be considered and are relevant to a correct interpretation of the drawings and determination of the enablement issue. The determination of enablement must be based on all evidence, specifically including the entirety of the original disclosure. *See* M.P.E.P. § 2164.05.

The test for enablement is whether one reasonably skilled in the art can make and use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. *See* M.P.E.P. § 2164.01. Mr. Macrae has carefully considered the

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originally filed specification, drawings, and claims. He has applied the correct test and found that the original disclosure fully enables one skilled in the art to make and use the disclosed invention of Cases 4 and 4a, the disclosure enabling the subject matter at issue. The declaration of Mr. Macrae must be considered. *See* M.P.E.P. § 2164.05. Applicant submits that the evidence of record in fact clearly establishes that the originally filed disclosure fully meets the enablement requirements of 35 U.S.C. § 112.

For the reasons explained in the declaration, Applicant respectfully requests that the rejection of original claim 3 be withdrawn. Further, Applicant request that each of pending claims 1-7 and 213-251 be allowed.

In view of the above circumstances, Applicant respectfully requests the reconsideration and reexamination of this application and the prompt allowance of a reissue patent.

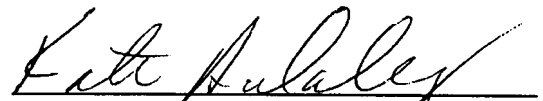
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To the extent that the Examiner concludes that any or all of the claims are not in condition for allowance or that any other issues remain, Applicant respectfully requests that the Examiner call one of the undersigned attorneys and extend the courtesy of a telephonic or personal interview to complete the prosecution of this application and permit the prompt issuance of the patentable claims.

Respectfully submitted,



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GAU: 3625 #  
PATENT

Attorney Docket No. 2376.0006-00000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue of  
U.S. Patent No. 5,462,120

Serial No.: 08/861,457

Group Art Unit: 3625

Reissue Filed: May 22, 1997

Examiner: H. Dang

For: DOWNHOLE EQUIPMENT, TOOLS AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED MULTIPLE DRAINHOLES

TRANSMITTAL LETTER

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Enclosed is a reply to the Office Action of April 18, 2000. The items checked below are appropriate:

☒ Applicant hereby petitions for a three month extension of time to respond to the above Office Action. The fee of \$890.00 for the Extension is enclosed.

The claims are calculated below:

	Claims Remaining After Amendment		Highest Number Previously Paid	Present Extra	Rate	Additional Fee
Total	50	-	85		x \$ 18	\$ 0
Indep.	5	-	11		x \$ 80	0
<input type="checkbox"/> First Presentation of Multiple Dep. Claim(s)					+\$270	
Subtotal						\$
Reduction by 1/2 if small entity						-
TOTAL						\$ 0

☐ A fee of \$[fee] to cover the cost of the additional claims added by this reply is enclosed.

☒ A check for \$890.00 to cover the above fee is enclosed.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Date: October 18, 2000.

By:

Kathleen A. Daley  
Registration No. 36,146

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. patent No. 5,462,120

Inventor: Michel Gondouin

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS  
AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED  
MULTIPLE DRAINHOLES

Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

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GROUP 3600

Group Art Unit: 3625

Examiner: Dang, H.

#24  
Drawing  
Completion  
2/4/00  
3/7/00

REQUEST FOR APPROVAL OF DRAWING CHANGE

Subject to the approval of the Examiner, it is respectfully requested that Figs. 3 and 6 in  
the above-captioned application be cancelled. The changes are indicated in red on the attached

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8. A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at

4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-

9:66 (a first embodiment), 9:67-10:34 (a second embodiment),

15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“sealing” relates to, without limitation,

obtaining a “pressure-tight connection” (e.g., 1:44-50), or

obtaining a “leak-proof connection” (e.g., 2:29-30).

“borehole” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10);

vertical well (e.g., 1:14, 2:62, 7:26), or vertical cased well (e.g.,

1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-

51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g.,

1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole

(e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a deviated well is an example of one of twin or

multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or

under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16).

“installing” (a tubular member) relates to, without limitation,

tying-in (e.g., 1:44-50, 2:67-3:4, 8:10-16, 16:54-60),

running-in (e.g., 7:66-67, 10:7-11), or

telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but

does not require sealing (cf. dependent Claim 26), and

does not require any “tubing completion” (e.g., “simple tubing

completion” for “commingled” flow at 1:56-63, 2:7-10,

10:20-29, contrasted to optional “direct connection of each

drainhole separately to a tubing” at 1:63-2:6, 10:29-32

referring back to 7:2-23 and 8:40-43).

“tubular member” relates to, without limitation,

casing, e.g., casing joint or casing patch (e.g., 4:35-48, 7:29-43,

8:49-57, 16:11-20, 16:45-49, 17:12),

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21,

16:41-49).

“removing . . .” (said tubular member) relates to, without limitation,

drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“at least a section of said first portion” relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),

drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or

drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

“to reopen . . .” relates to, without limitation,

- a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),
- b. to leave full openings in well (e.g., 8:21-30),
- c. so that entire casing space available (e.g., 10:11-19), or
- d. to restore well to full drift diameter (e.g., 16:43-44).

9. The method of Claim 8 wherein said tubular member is a liner.

Same as independent Claim 8, especially: 1:25-50, 2:30-31, 3:49, 7:64-8:15, FIG. 3a, 10:7-19, FIG. 4, 16:7-44, FIG. 10, and 16:54-58.

Notes:

"liner" includes without limitation,

- a liner of medium to short radius of curvature (e.g., 1:19-24, 1:46-48) and of sufficient diameter to allow the passage of available well logging, perforating, cementing, and cleaning tools, for subsequent maintenance and repairs (e.g., 1:46-50), e.g.,
- intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub (e.g., 8:54-9:27, 16:21, 16:41-49).
- a liner, in the horizontal part, may be a slotted liner equipped with screens for gravel packing or it may be cemented and later selectively perforated (e.g., 5:8-11).

10. The method of Claim 9 wherein said primary borehole includes casing and including the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole; and

drilling said branch borehole.

Same as Claim 9, especially: 2:25-29, 4:40-45, 7:25-67, 8:45-62, 9:67-10:7, 16:54-17:29, and FIGS. 4, 10, and 11; and additionally: 4:35-48 and FIG. 1.

Notes:

"opening" (in said casing) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35; FIG. 3b; 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

"casing" relates to, without limitation, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

"forming" relates to, without limitation, machining a pre-established window (e.g., 4:40-45, 16:36), drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or milling the casing using milling tool and whipstock (e.g., 15:30-40; 16:54-17:29).

"installation of said casing" relates to, without limitation, make-up, run-in, and cementing (e.g., 7:29-34, 8:49-57, 16:11-20, 16:45-49).

11. The method of Claim 9 including:

redrilling the primary borehole to reopen the primary borehole.

Same as Claim 9, especially: 8:25-30, 17:8-11.

12. The method of Claim 9 including the step of:

positioning a diverter at the entrance to said branch borehole; and

diverting said second portion of said liner into said branch borehole using said diverter.

Same as Claim 9, especially: 7:48-8:11, FIGS. 3b and 3c, 8:54-9:27, FIG. 4, 10:4-8, 15:30-35, 16:28-31, FIG. 10; and additionally: 4:48-54.

Notes:

"diverter" relates to, without limitation, something that provides a curved guiding path from a guide plate above to the (plugged) window(s) (e.g., 4:48-54), something that provides a curved guiding surface that matches the depth, width and orientation of the window (e.g. 7:54-58), something that guides the liner during its outward extension (8:62-9:1), retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

13. (AMENDED) The method of Claim 12, including the step of: providing said diverter with a removable portion [plug]; and removing said portion [plug] during reopening of the primary borehole.

Same as Claim 12, especially: 7:48-50, FIGS. 3b and 3c, 10:4-8, 15:30-35.

Notes:

"removable portion", relates to, without limitation, drillable whipstock packer, and retrievable whipstock.

14. The method of Claim 12 including: milling said section and said diverter to effect their removal.

Same as Claim 12, especially: 8:21-34, 10:11-19, 16:41-49.

Notes:

"said section" is of said first portion of said liner residing in the primary borehole.

"milling" said section of said tubular member (e.g., 8:21-34, 10:11-19, 16:41-49).

"milling" said diverter, e.g., tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

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15. (AMENDED) The method of Claim 13 wherein: said removable portion of said diverter comprises a whipstock [packer assembly].

Same as Claim 13.

16. (AMENDED) The method of Claim 12 [13] wherein: said diverter comprises a whipstock packer assembly.

Same as Claim 12, especially: 7:48-50, FIGS. 3b and 3c, 10:4-8, 15:30-35.

Notes:

“whipstock packer assembly” relates to, without limitation, a drillable whipstock packer, and a retrievable whipstock.

17. (CANCELED) The method of Claim 13 wherein: said plug is removably attached within a bore formed axially through said diverter.

CANCELED.

18. The method of Claim 12 including the step of: removing said diverter from said primary borehole.

Same as Claim 12, especially: 8:21-34, 16:41-49.

Notes:

“removing said diverter” relates to, without limitation, latching onto and pulling out a whipstock (e.g., 8:21-34), or drilling or milling out a supporting whipstock packer (e.g., 8:21-34), and/or drilling or milling out drillable guide (e.g., 16:41-49).

19. (AMENDED) The method of Claim 26 [9] wherein: said sealing step comprises the delivery of cementitious [cementitious] slurry between (1) said liner and (2) said primary borehole.

Same as Claim 26, especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58 and FIG. 3b and 10.

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20. (CANCELED) The method of Claim 9 including the step of:

retaining said liner in position within said primary borehole using a packer.

CANCELED.

21. The method of Claim 9 including the steps:

effecting communication from the interior of said liner to the surface of said primary wellbore, said communication being effected using at least one connector in said primary borehole.

Same as Claim 9, additionally: 8:39-44, 5:33-46 and FIG. 1c, 7:2-23 and FIG. 2d, 9:28-66 and FIG. 4a-b, 10:30-52 and FIG. 4e, 16:52-53.

Notes:

"effecting communication . . ." relates to, without limitation, tubing or well completion (e.g., 1:51-2:14, 2:25-3:19, 8:39-44, 7:2-23 and FIG. 2d, 9:28-66 and FIG. 4a-b, 10:29-32 referring back to 7:2-23 and 8:40-43, 10:34-52, FIG. 4e, 16:52-53).

"connector" relates to, without limitation,

a polished bore receptacle (e.g., 8:39-44, 5:33-46 and FIG. 1c, 9:28-66 and FIG. 4a-b, 10:30-33).

22. The method of Claim 8 wherein:

the steps are repeated for at least one second branch borehole.

Same as Claim 8, especially: 1:17-24, 1:43-50, 2:39-3:19, 9:25-27, 10:15-19, 16:45-49.

23. (AMENDED) The method of Claim [12 wherein:] 8 including the step of:

positioning a diverter at the entrance to said branch borehole; and

diverting said second portion of said tubular member into said branch borehole using said diverter, wherein said diverter includes a bore therethrough.

Same as Claim 8, especially: 2:10-14.

Notes:

"bore" (through the diverter) relates to, without limitation, tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

24. The method of Claim 12 including:

repositioning said diverter for selective reentry into a different branch borehole.

Same as Claim 12, especially: 9:67-10:14.



25. (AMENDED) The method of Claim 2 [8] wherein said primary borehole includes casing having an opening therethrough at the intersection of said primary and branch boreholes, said first portion of said liner residing in said casing and said second portion of said liner extending through said opening and into said branch borehole.

Same as Claim 8, especially: 1:19, 2:59-60, 2:64, 2:67 and FIG. 3b, 3:50-51, 4:35-48, 7:26-43, 8:29, 8:49-57, 15:30-31, 16:11-20, 16:45-57, 17:13.

Notes:

"casing" relates to, without limitation, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), special casing patch (e.g., 16:11-20, 16:45-49, 17:13), vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43), deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31).

"opening" (in said casing) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

26. (AMENDED) The method of Claim 2 [8] including the step of:

sealing said liner at said intersection between said primary and branch boreholes.

Same as Claim 8, especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58.

Notes:

"sealing" relates to, without limitation, cementing (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58).

27. A well having a primary borehole intersecting with a branch borehole, the intersection being sealed in accordance with the method of Claim 8.

Same as Claim 8, especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58.

Notes:

"sealed" relates to, without limitation, cemented (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58).

28. (AMENDED) A well having a primary borehole intersecting with a branch borehole comprising:

a tubular member positioned at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and wherein a second portion of said tubular member resides in said branch borehole, at least a section of said first portion of said tubular member being removed [including an opening therethrough], such that a region in the primary borehole above the tubular member communicates with a region in the primary borehole below the tubular member.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“borehole” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“tubular member” relates to, without limitation,

casing, e.g., casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12), intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

“positioned” relates to, without limitation,

tied-in (e.g., 1:44-50, 2:67-3:4, 8:10-16, 16:54-60), run-in (e.g., 7:66-67, 10:7-11) or telescopically extended, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but does not require sealing (see dependent Claims 36, 38-39), and does not require any “tubing completion” (e.g., “simple tubing completion” described at 1:56-63, 2:7-10, and 10:20-29, compare to optional “direct connection of each drainhole separately to a tubing” described at 1:63-2:6 and 10:29-32 referring back to 7:2-23 and 8:40-43).

“at least a section of said first portion” relates to, without limitation,

any protruding obstruction (e.g., 17:8-11), drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

“being removed . . .” relates to, without limitation,

to being drilled or milled (e.g., 8:21-34, 10:11-19, 16:41-49).

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29. The well of Claim 28 wherein said tubular member is a liner.

Same as independent Claim 28, especially: 1:25-50, 2:30-31, 3:49, 7:64-8:15, FIG. 3a, 10:7-19, FIG. 4, 16:7-44, FIG. 10, and 16:54-58.

Notes:

"liner" includes without limitation,

- a liner of medium to short radius of curvature (e.g., 1:19-24, 1:46-48) and of sufficient diameter to allow the passage of available well logging, perforating, cementing, and cleaning tools, for subsequent maintenance and repairs (e.g., 1:46-50), e.g.,
  - intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or
  - telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21).
- a liner, in the horizontal part, may be a slotted liner equipped with screens for gravel packing or it may be cemented and later selectively perforated (e.g., 5:8-11).

30. (AMENDED)The well of Claim 134 [29] wherein said liner initially blocks said primary borehole and wherein:

said opening is provided by removing said section of said first portion of said liner to reopen said blocked primary borehole.

Same as Claim 134, especially: 8:21-34, 8:62-9:17, 10:11-19, 16:41-49, 17:8-11.

Notes:

"removing" relates to, without limitation,

drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

"at least a section of said first portion" relates to, without limitation, any protruding obstruction (e.g., 17:8-11), drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or drillable guide (e.g., 8:62-9:17, 16:41-49).

"to reopen" relates to, without limitation,

- a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),
- b. to leave full openings in well (e.g., 8:21-30),
- c. so that entire casing space available (e.g., 10:11-19), or
- d. to restore well to full drift diameter (e.g., 16:43-44).

31. The well of Claim 29 including:

a diverter at the entrance to said branch borehole, said liner having been diverted by said diverter into said branch borehole.

Same as Claim 29, especially: 7:49-50, 8:62-9:1, FIG. 4, 10:4-7, 14:34-35, 16:28-31, FIG. 10.

Notes:

“diverter” relates to, without limitation,

something that provides a curved guiding path from a guide plate above to the (plugged) window(s) (e.g., 4:48-54),

something that provides a curved guiding surface that matches the depth, width and orientation of the window (e.g. 7:54-58),

something that guides the liner during its outward extension (8:62-9:1),

retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

32. (AMENDED) The well of Claim 31 including: a removable portion [plug] in said diverter.

Same as Claim 31, especially: 7:48-50, FIGS. 3b and 3c, 10:4-8, 15:30-35.

Notes:

“removable portion”, relates to, without limitation,

drillable whipstock packer, and retrievable whipstock.

33. The well of Claim 31 wherein:

said diverter comprises a whipstock packer assembly.

Same as Claim 31, especially: 7:48-50, FIGS. 3b and 3c, 10:4-8, 15:30-35.

Notes:

“whipstock packer assembly” relates to, without limitation, a drillable whipstock packer, and a retrievable whipstock.

34. (CANCELED) The well of Claim 32 wherein:

said plug is removably attached within a bore formed axially through said diverter.

CANCELED.

35. The well of Claim 31 including:

a bore formed axially through said diverter.

Same as Claim 31.

36. The well of Claim 29 including:

cement between (1) said liner and (2) said primary borehole.

Same as Claim 29, especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58.

37. The well of Claim 29 including:

a connector for effecting communication from the interior of said liner to the surface of said primary wellbore.

Same as Claim 29, additionally: 8:39-44, 5:33-46 and FIG. 1c, 7:2-23 and FIG. 2d, 9:28-66 and FIG. 4a-b, 10:30-52 and FIG. 4e, 16:52-53.

Notes:

“connector” relates to, without limitation, a polished bore receptacle (e.g., 8:39-44, 5:33-46 and FIG. 1c, 9:28-66 and FIG. 4a-b, 10:30-33).

“effecting communication . . .” relates to, without limitation, tubing or well completion (e.g., 1:51-2:14, 2:25-3:19, 8:39-44, 7:2-23 and FIG. 2d, 9:28-66 and FIG. 4a-b, 10:29-32 referring back to 7:2-23 and 8:40-43, 10:33-52 and FIG. 4e, 16:52-53).

38. The well of Claim 31 wherein:

the diverter closes the primary borehole to support sealing material and is at least in part removable to open the primary borehole.

Same as Claim 31, especially: 7:49-50, 8:35-38, 8:62-9:1, 4:50-54, 10:4-7, 15:34-35, 16:28-31, FIGS. 4 and 10.

Notes:

“diverter closes . . . to support sealing material” relates to, without limitation, base of whipstock with rubber cup for catching excess cement during cementing operations (e.g., 7:61-62).

“diverter . . . and is at least in part removable . . .” relates to, without limitation,

retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10);

also, “bladder” and a “suitable device including shearing disks” associated with casing patch and guides for telescopic liner stub, allowing injection of “cement slurry in the two overlap annular spaces between casing and casing patch hangers (14) above and below the cement-filled bladder, during the hydraulically-controlled extension of the stub into the slurry filling the rubber bladder.” (e.g., 16:11-44, FIG. 10).

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39. The well of Claim 29  
wherein:

said liner is sealed at said  
intersection between said primary  
and branch boreholes.

Same as Claim 29,  
especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11,  
16:17-58.

Notes:

"sealed" relates to, without limitation,  
cemented (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16,  
10:7-11, 16:17-58).

40. (AMENDED) A lateral seal and control system comprising:

a) a first borehole having a window therein;

b) a secondary borehole extending from said first borehole, coextensive with said window; and

c) a secondary borehole tubular member [production pipe] having a flange about the periphery of an uphole end of said tubular member [pipe], said flange being sealably engagable with a periphery of said window.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at

4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-

9:66 (a first embodiment), 9:67-10:34 (a second embodiment),

15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

"lateral" relates to, without limitation, a horizontal borehole.

"seal and control system" relates to, without limitation, a system for obtaining a "pressure-tight connection" (1:44-50), or obtaining a "leak-proof connection" (e.g., 2:29-30), but does not require sealing, see "sealably engagable" in same claim.

"borehole" relates to, without limitation, open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a "deviated well" can be one of twin or multiple "drainholes" (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

"window" (in said borehole) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

"secondary borehole tubular member" relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

"flange" (of said production pipe) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

"uphole end" (of said production pipe) relates to, without limitation, upper end of liner (e.g., 7:67-8:5) or of liner stub (e.g., 9:2-3), or tail end (drillable collar) (e.g., 16:41-42).

"sealably engagable" relates to, without limitation, cementable (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58), but does not require sealing (cf. dependent Claims 41, 44, and 45).

41. (AMENDED) The lateral seal and control system as claimed in Claim 40, additionally comprising: cementitious material around the junction between said first borehole and said secondary borehole tubular member [production pipe].

Same as Claim 40,  
especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11,  
16:17-58.

42. The lateral seal and control system as claimed in Claim 40, wherein said flange includes an elastomeric sealing element.

Same as Claim 40,  
especially: 8:5-6, 9:2-3.

Notes:

“elastomeric sealing element” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6; 9:2-3).

43. The lateral seal and control system as claimed in Claim 40, further comprising: resilient sealing material on said flange.

Same as Claim 42,  
especially: 8:5-6, 9:2-3.

Notes:

“resilient sealing material . . .” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

44. (AMENDED) The lateral seal and control system as claimed in any one of Claims 40-43, wherein said flange on said secondary borehole tubular member [production pipe] is disposed such that when said flange sealably engages the periphery of said window said secondary borehole tubular member [production pipe] follows the direction of said secondary borehole.

Same as Claims 40-43.



45. The lateral seal and control system as claimed in Claim 40, further comprising means for urging said flange into sealable contact with the periphery of said window.

Same as Claim 40,  
especially: 8:15-19.

Notes:

“means for urging . . .” relates to, without limitation,  
a ball or plug dropped to close the shoe and casing mud pressure  
is increased to firmly apply the drillable collar against the  
inner surface of the casing (e.g., 8:15-18).

46. (AMENDED) The lateral seal and control system as claimed in Claim 40, wherein a primary borehole tubular member is positioned in said first borehole and the window is formed in the primary borehole tubular member.

Same as Claim 40,  
especially: 4:35-48, 7:29-43, 7:54-57, 7:64, 8:49-57, 9:4-10, 10:4-7,  
15:30-40, 16:11-20, 16:36, 16:45-49, 16:54-17:29, FIGS. 1, 3b,  
4, and 11.

Notes:

“primary borehole tubular member” relates to, without limitation,  
special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or  
special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

“is positioned in said first borehole” relates to, without limitation,  
make-up, run-in, and cementing (e.g., 7:29-34, 8:49-57, 16:11-  
20, 16:45-49).

“window” (in said tubular member) relates to, without limitation,  
elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-  
53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“is formed” relates to, without limitation,  
machining a pre-established window (e.g., 4:40-45, 16:36),  
drilling a drillable plate or plug in a pre-established window (e.g.,  
4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or  
milling the casing using milling tool and whipstock (e.g., 16:54-  
17:29).

47. (AMENDED) The lateral seal and control system as claimed in Claim 46, wherein said primary borehole tubular member is a casing section.

Same as Claim 46,  
especially: 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:13.

Notes:

“casing section” relates to, without limitation,  
special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or  
special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

48. (AMENDED) The lateral seal and control system as claimed in Claim 46, wherein said primary borehole tubular member is a casing patch positioned in a preexisting casing of said first borehole.

Same as Claim 46,  
especially: 3:17-19, 16:11-20, 16:45-49, 17:13, and FIG. 10.

Notes:

“casing patch” relates to, without limitation,  
special casing patch (e.g., 3:17-19, 16:11-20, 16:45-49, 17:13,  
FIG. 10).

49. (AMENDED) The lateral seal and control system as claimed in Claim 46, wherein said secondary borehole tubular member [production pipe] is carried downhole by said primary borehole tubular member.

Same as Claim 46,  
especially: 8:54-9:17, 16:16-37, FIGS. 4 and 10.

Notes:

"carried . . . by said tubular member" relates to, without limitation, the embodiments shown in FIGS. 3, 4, and 10.

50. (AMENDED) A lateral seal and control system as claimed in Claim 49, further comprising: guide means positioned in said primary tubular member for guiding said secondary borehole tubular member [production pipe] from said tubular member and through said window.

Same as Claim 49,  
especially: 8:62-9:1, 16:28-31, FIGS. 4 and 10.

Notes:

"guide means . . ." includes without limitation, something that guides the liner during its outward extension (8:62-9:1, and FIG. 4), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

51. (AMENDED) A lateral seal and control system as claimed in Claim 50, further comprising means on said guide means [tubular member] and said flange to orientate said flange in said primary borehole tubular member.

Same as Claim 50,  
especially: 7:50-54, 8:5-11, 17:14-21.

Notes:

"means . . . to orient said flange . . ." relates to, without limitation, central alignment groove in a whipstock within special casing joint and mating key in flange (e.g., 7:50-54, 8:5-11), or pre-oriented whipstock packer in special casing patch (e.g., 17:14-21).

52. A lateral seal and control system as claimed in Claim 51, wherein said means for orientating said flange in said tubular member comprises a groove and a mating key adapted to engage said groove.

Same as Claim 51.

53. A method for sealing the junction between a branch wellbore and a parent wellbore comprising the steps of:

- a) drilling a parent wellbore;
- b) drilling a window and branch wellbore by placing a deflecting tool in the parent wellbore and running a drill string from the parent wellbore;
- c) removing the deflecting tool;
- d) running a production tube having a flange at the uphole end thereof; and
- e) urging said production tube into the branch wellbore until the flange is in sealed contact with a periphery of the window.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at

4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-

9:66 (a first embodiment), 9:67-10:34 (a second embodiment),

15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10);

vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g.,

1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-

51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g.,

1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole

(e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a “deviated well” can be one of twin or multiple

“drainholes” (e.g., 8:28-34 and FIG. 3b); or

under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16,

and FIG. 10).

“window” (in the wellbore) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-

53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“deflecting tool” relates to, without limitation,

something that provides a curved guiding path from a guide plate

above to the (plugged) window(s) (e.g., 4:48-54),

something that provides a curved guiding surface that matches

the depth, width and orientation of the window (e.g. 7:54-

58),

something that guides the liner during its outward extension

(8:62-9:1),

retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or

tubular guides or cages of drillable metal, such as a fixed guide

for a telescopic liner stub and mobile guide (e.g., 8:62-9:1,

FIG. 4, 16:28-31, FIG. 10).

“drill string” relates to, without limitation,

conventional downhole motor and bent sub assembly (e.g., 8:35-

38 referring back to 6:26-47), or

coiled tubing (e.g., 8:35-38 referring back to 6:26-47).

“production tube” relates to, without limitation,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21,

16:41-49),

especially in cases that do not require any “tubing completion”

(e.g., “simple tubing completion” for “commingled” flow at

1:56-63, 2:7-10, 10:20-29, contrasted to optional "direct connection of each drainhole separately to a tubing" at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).  
"flange" (of said production tube) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).  
"uphole end" of said production tube) relates to, without limitation, upper end of liner stub (e.g., 9:2-3), or tail end (drillable collar) (e.g., 16:41-42).  
"urging . . ." relates to, without limitation, dropping a ball or plug to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing (e.g., 8:15-18).  
"sealed contact" relates to, without limitation, sealing, such as by cementing (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58), but does not require actual sealing (cf. dependent Claim 57).

54. A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 53, wherein the flange includes a seal material.

Same as Claim 53,  
especially: 8:5-6, 9:2-3.

Notes:

"seal material" relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

55. A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 54, wherein the seal material is elastomeric material.

Same as Claim 54,  
especially: 8:5-6, 9:2-3.

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56. (AMENDED) A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 53, wherein said method further includes providing a housing having a premachined window [and which housing envelops the tube during run in and running the housing to a predetermined location prior to the urging step].

Same as Claim 53, especially: 4:35-48, 7:29-50, 8:49-9:17, 16:11-37, 16:45-49, 17:13, and FIGS. 4 and 10.

Notes:

"housing" relates to, without limitation, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or special casing patch (e.g., 16:11-20, 16:45-49, 17:13).  
"premachined window" (in the housing) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

57. A method of sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 53, additionally comprising the step of: placing cementitious material around the juncture and allowing the material to harden.

Same as Claim 53, especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58.

58. (AMENDED) In a method of tying-in a first tubular [tublar] member to a second tubular member in a wellbore extending into a subterranean formation, the method comprising the steps of:

(a) positioning the second tubular member in the wellbore;

(b) forming an opening in the wall of the second tubular member;

(c) forming a subsurface cavity external to the second tubular member in the subterranean formation;

(d) positioning the first tubular member to extend from the interior of the second tubular member, through the opening, and into the subsurface cavity;

(e) inserting settable material into the subsurface cavity at the intersection between the first and second tubular [tublar] members and allowing the settable material to set up thereby sealing the intersection; and

(f) thereafter removing at least a portion of the first tubular member at the intersection to provide a passageway through the second tubular [tublar] member at the intersection to permit fluid flow and tool passage through the intersection.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“first tubular member” relates to, without limitation,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“second tubular member” relates to, without limitation,

casing, e.g., casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12).

“opening” (in second tubular member) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 16:36, 16:54-17:29, FIG. 11),

side-track window (e.g., 15:30-40), or

milled out interval of second tubular member (e.g., 8:58-9:6, 16:11-16, FIG. 10, also compare to dependent Claim 60).

“forming an opening” relates to, without limitation,

machining a pre-established window (e.g., 4:40-45, 16:36),

drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or

milling the casing using milling tool and whipstock (e.g., 15:30-40, 16:54-17:29).

“forming a subsurface cavity” relates to, without limitation,

branch wellbore (compare to dependent claim 64), or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, FIG. 10).

“positioning” (first tubular member) relates to, without limitation, tie-in (e.g., 1:44-50, 2:67-3:4, 8:10-16, 16:54-60), run-in (e.g., 7:66-67, 10:7-11), or telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but does not require sealing (cf. dependent Claim 26), and does not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“inserting” (settable material) relates to, without limitation, cementing (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58).

“settable material” relates to, without limitation, Furan or other known heat-hardened resin/cement slurries (e.g., 8:34-38 referring back to 6:7-9).

“removing” relates to, without limitation, drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“at least a portion” (of the first tubular member) relates to, without limitation,

any protruding obstruction (e.g., 17:8-11), drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

“to provide a passageway” is functionally defined “to permit fluid flow and tool passage”, and can be, but need not be, a window (compare and contrast dependent Claims 65-71 and 76, wherein the first tubular member has a machined end and/or a flanged element adapted to conform with the opening in the second tubular member), including, without limitation,

- a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),
- b. to leave full openings in well (e.g., 8:21-30),
- c. so that entire casing space available (e.g., 10:11-19), or
- d. to restore well to full drift diameter (e.g., 16:43-44).

59. The method according to Claim 58, wherein the step of forming an opening in the second tubular member comprises: milling a window in the wall of the second tubular member.

Same as Claim 58,  
especially: 15:30-40; 16:54-17:29.

Notes:

“window” (in second tubular member) relates to, without limitation, elliptical window (e.g., 15:30-40; 16:54-17:29).

60. The method according to Claim 58, wherein the step of forming an opening in the second tubular member comprises: milling over an axially extending interval of the second tubular member.

Same as Claim 58,  
especially: 16:11-16 and FIG. 10.

Notes:

“milling over an axially extending interval” (of second tubular member) relates to, without limitation, milled out interval (e.g., 16:11-16, FIG. 10).

61. The method according to Claim 60, wherein the step of forming the subsurface cavity comprises: under-reaming the subterranean formation to enlarge a wellbore.

Same as Claim 60,  
especially: 8:58-9:6, 16:11-16, and FIG. 10.

Notes:

“under-reaming . . .” relates to, without limitation, under-reaming the hole to a diameter of about 30 inches (e.g., 8:58-9:6, 16:11-16, FIG. 10).

62. The method according to Claim 61, wherein the step of positioning the second tubular member in the wellbore comprises: positioning a casing patch having a preformed window in the wall thereof in the enlarged wellbore.

Same as Claim 61,  
especially: 4:40-45, 16:11-16, 16:36, and FIG. 10.

Notes:

“positioning” (a casing patch) relates to, without limitation, running-in (e.g., 16:11-16).

“preformed window” (in casing patch) relates to, without limitation, machining a pre-established window (e.g., 4:40-45, 16:36),

63. The method according to Claim 58, wherein the step of forming the opening in the second tubular member comprises: milling an elliptical window therein.

Same as Claim 58,  
especially: 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29 and FIG. 11.

Notes:

“forming” (the opening) relates to, without limitation, milling the casing using milling tool and whipstock (e.g., 15:30-40; 16:54-17:29).

“opening” (in second tubular member) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 15:30-40, 16:36, 16:54-17:29, FIG. 11).



64. The method according to Claim 63, wherein the step of forming the subsurface cavity comprises: drilling a branch wellbore through the window.

Same as Claim 63,  
especially: 16:54-17:29.

Notes:

“drilling . . .” relates to, without limitation,  
drilling side tracked holes through elliptical windows (e.g.,  
16:54-17:29).

65. The method according to Claim 64, wherein the first tubular member has an end machined so as to conform with the inner edge of the window.

Same as Claim 64,  
especially: 16:54-17:29 and FIG. 3a.

Notes:

“end machined . . .” relates to, without limitation,  
upper end machined as shown in FIG. 3a so as to conform with  
the inner edge of the window (e.g., 16:54-17:29, FIG. 3a).

66. (AMENDED) The method according to either one of Claims 64 or 65, wherein the first tubular member includes a flanged element larger than the window, the method further comprising the step of positioning the flanged element in contact with the inner surfaces of the second tubular [tublar] member at the edge of the window.

Same as Claims 64 or 65,  
especially: 2:67-3:4, 7:66-67, 8:21-34, 8:57-9:1, 10:7-19, 16:17-49.

Notes:

“flanged element . . .” relates to, without limitation,  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).  
“positioning the flanged element in contact . . .” relates to, without  
limitation,  
running-in (e.g., 7:66-67, 10:7-11), or  
telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but  
does not require sealing (cf. dependent Claim 26), and  
does not require any “tubing completion” (e.g., “simple tubing  
completion” for “commingled” flow at 1:56-63, 2:7-10,  
10:20-29, contrasted to optional “direct connection of each  
drainhole separately to a tubing” at 1:63-2:6, 10:29-32  
referring back to 7:2-23 and 8:40-43).

67. The method according to Claim 66, wherein the flanged element is a collar made of a drillable material.

Same as Claim 66,  
especially: 8:21-34, 10:11-19, 16:41-49.

Notes:

“collar made of a drillable material” relates to, without limitation,  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

68. The method according to Claim 67, wherein the flanged element includes a sealing material selected from the group consisting of rubber or plastic.

Same as Claim 67,  
especially: 8:5-6, 9:2-3.

Notes:

“sealing material” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

69. The method according to Claim 68, wherein the sealing material is a rubber gasket.

Same as Claim 68,  
especially: 8:5-6, 9:2-3.

Notes:

“sealing material” relates to, without limitation,  
rubber gasket (e.g., 8:5-6, 9:2-3).

70. The method according to Claim 67, wherein the flanged element of the first tubular member has an alignment means formed thereon for use in the step of positioning the flanged element in contact with the inner surfaces of the second tubular member at the edge of the window.

Same as Claim 67,  
especially: 7:50-54, 8:5-11.

Notes:

“alignment means” (on the first tubular member for . . .) relates to, without limitation,  
mating key in the flanged element for use with a central alignment groove in a whipstock within the second tubular member (e.g., 7:50-54, 8:5-11).

71. The method according to Claim 67, wherein the step of removing at least a portion of the first tubular member comprises: drilling out the flanged element of the first tubular member in the second tubular member.

Same as Claim 67,  
especially: 8:21-34, 10:11-19, 16:41-49.

Notes:

“removing” relates to, without limitation,  
drilling (e.g., 8:21-34, 10:11-19, 16:41-49).  
“flanged element” (of the first tubular element) relates to, without limitation,  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

72. The method of Claim 67 additionally comprising the steps of: installing a whipstock packer in the second tubular member for directing the first tubular member from the second tubular member, through the window, and into the subterranean cavity.

Same as Claim 67,  
especially: 7:48-50, FIGS. 3b and 3c, 10:4-8, 15:30-35.

Notes:

“whipstock packer assembly”, relates to, without limitation,  
drillable whipstock packer, and  
retrievable whipstock.

73. The method according to Claim 72, further comprising the step of: thereafter cutting at least a portion of the whipstock packer to reopen the second tubular member for fluid flow and tool access through the intersection.

Same as Claim 72,  
especially: 8:21-34.

Notes:

“cutting at least a portion of the whipstock packer . . .” relates to, without limitation,  
drilling out the supporting whipstock packer (e.g., 8:21-34).

74. The method according to Claim 58, wherein the settable material is a cementitious slurry.

Same as Claim 58,  
especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16.

Notes:

“settable material” relates to, without limitation,  
cement (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16), or  
Furan or other known heat-hardened resin/cement slurries (e.g.,  
8:34-38 referring back to 6:7-9).

75. The method according to Claim 58, wherein the settable material is a heat-hardened resin/cement slurry.

Same as Claim 58,  
especially: 8:34-38 referring back to 6:7-9.

Notes:

“heat-hardened material” relates to, without limitation,  
Furan or other known heat-hardened resin/cement slurries (e.g.,  
8:34-38 referring back to 6:7-9).

76. The method according to Claim 58, wherein the step of removing at least a portion of the first tubular member comprises: removing the entire portion of the first tubular member extending into the second tubular member.

Same as Claim 58.

77. The method according to Claim 58, further comprising the step of: connecting the first tubular member to production tubing with a tubing connector.

Same as Claim 58,  
additionally: 10:30-33 referring to 7:2-23 and 8:40-43.

Notes:

“connecting . . .” relates to, without limitation,  
well or tubing completion (e.g., 10:30-33 referring to 7:2-23 and  
8:40-43).

“production tubing” relates to, without limitation,  
production tubing string assembly (e.g., 7:2-23)

“tubing connector” relates to, without limitation,  
spherical seal joint (e.g., 7:2-23), or  
polished bore receptacle (e.g., 8:40-43).

78. The method according to Claim 77, wherein the tubing connector is a polished bore receptacle.

Same as Claim 77,  
especially: 8:40-43.

79. (AMENDED) A method for connecting a lateral wellbore to a primary wellbore, the method comprising the steps of:

under-reaming a portion of the primary wellbore;

running a tubular member into the under-reamed portion of the primary wellbore, the tubular member having at least one liner stub, the liner stub having an upper end and a lower end;

extending the lower end of the liner stub into the under-reamed portion of the primary wellbore;

drilling a lateral wellbore;

running-in a lateral liner through the liner stub and into the lateral wellbore; and

hanging the lateral liner from the lower end of the liner stub.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:35-39 referring back to 6:33-44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“connecting” relates to, without limitation, a system for obtaining a “pressure-tight connection” (1:44-50), or obtaining a “leak-proof connection” (e.g., 2:29-30).

“wellbore” relates to, without limitation, open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“under reaming” relates to, without limitation, making an under-reamed portion of vertical wellbore (e.g., 8:58-9:6, 16:11-16, FIG. 10).

“a portion of a primary wellbore” relates to, without limitation, a portion at the bottom of the wellbore (e.g., 8:58-9:6), or an intermediate interval of the wellbore (e.g., 16:11-16, FIG. 10).

“tubular member” relates to, without limitation, casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12).

“liner stub” relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

“extending” (the liner stub) relates to, without limitation, running-in (e.g., 7:66-67, 10:7-11), or telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49).

“lateral liner” relates to, without limitation, smaller diameter liner (e.g., 8:35-39 referring back to 6:33-44), or coil tubing (e.g., 8:35-39 referring back to 6:33-44).

80. The method according to Claim 79, wherein the primary wellbore has a preexisting casing, the method further comprising the step of: milling out a portion of the preexisting casing of the primary wellbore, and wherein the step of under-reaming a portion of the primary wellbore is performed where the preexisting casing has been milled out.

Same as Claim 79,  
especially: 1:19, 2:59-60, 2:67, 16:11-16, 16:43, FIGS. 3b, 10.

Notes:

“preexisting casing” relates to, without limitation,  
vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43).  
“milling out a portion . . .” relates to, without limitation,  
milling out an intermediate interval of the wellbore (e.g., 16:11-16, and FIG. 10).

81. The method according to Claim 80, wherein the tubular member is in the form of a casing patch having an outside diameter less than the drift diameter of the preexisting casing of the primary wellbore.

Same as Claim 80,  
especially: 16:11-20, 16:45-49, 17:13, FIG. 10.

Notes:

“casing patch having . . .” relates to, without limitation,  
special casing patch (e.g., 16:11-20, 16:45-49, 17:13, FIG. 10).

82. The method according to any one of Claims 79-81, wherein the tubular member has a window formed therein.

Same as any one of Claims 79-81.

Notes:

“window” (in tubular member) relates to, without limitation,  
elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

83. The method according to Claim 82, wherein a drillable plug closes the window.

Same as Claim 82.

Notes:

“drillable plug” relates to, without limitation,  
drillable plate or plug in a pre-established window (e.g., 4:35-48; 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60).

84. (AMENDED) The method according to any one of Claims 79-81, further comprising the step of: drilling a window in the [tubing] tubular member.

Same as any one of Claims 79-81,  
especially: 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:54-17:29.

Notes:

“drilling” (a window in the tubular member) relates to, without limitation,  
machining a pre-established window (e.g., 4:40-45, 16:36),  
drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or  
milling the tubular member (e.g., casing) using milling tool and whipstock (e.g., 15:30-40; 16:54-17:29).

85. The method according to Claim 79, wherein the liner stub is a telescopic liner stub.

Same as Claim 79,  
especially: 8:54-9:27, 16:21, 16:41-49.

86. The method according to Claim 85, wherein the step of extending the lower end of said liner stub into the under-reamed portion of the primary wellbore comprises hydraulically extending the telescopic liner stub.

Same as Claim 85,  
especially: 8:54-9:27, 16:21, 16:41-49.

87. The method according to Claim 86, wherein the telescopic liner stub is a mobile liner stub slidably mounted and supported during run-in and guided during its extension by a tubular guide made of drillable material and attached to the tubular member by drillable fasteners.

Same as Claim 86,  
especially: 8:62-9:1, FIG. 4, 16:28-31, FIG. 10.

Notes:

“tubular guide” relates to, without limitation,  
tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

88. A method according to Claim 87, wherein said mobile liner stub is terminated by a drillable collar.

Same as Claim 87,  
especially: 8:21-34, 10:11-19, 16:41-49.

Notes:

“drillable collar” relates to, without limitation,  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

89. A method according to Claim 87, wherein said mobile liner stub includes a sealing material at the collar.

Same as Claim 87,  
especially: 8:5-6, 9:2-3.

Notes:

“sealing material” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

90. A method according to Claim 79, further comprising the step of cementing the lateral liner in the lateral wellbore.

Same as Claim 79,  
especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58.

Notes:

“cementing” (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58).

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91. A method according to Claim 79, further comprising the step of: removing the upper portion of said liner stub protruding in the tubular member after extending the lower end of said liner stub.

Same as Claim 79,  
especially: 8:21-34, 8:62-9:17, 10:11-19, 16:41-49.

Notes:

“removing . . .” relates to, without limitation,  
drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).  
“upper portion . . . protruding in . . .” relates to, without limitation,  
any protruding obstruction (e.g., 17:8-11),  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or  
drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

92. An apparatus for drilling a lateral wellbore from a primary wellbore and connecting the lateral wellbore to the primary wellbore, the apparatus comprising:

a tubular member located in the primary wellbore, said tubular member having a window; and

a liner stub housed within said tubular member, said liner stub having an upper end and a lower end, at least a portion of said liner stub being extendable outside said tubular member into an under-reamed portion of the primary wellbore for providing a location from which to drill the lateral wellbore.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“connecting” relates to, without limitation, a system for obtaining a “pressure-tight connection” (1:44-50), or obtaining a “leak-proof connection” (e.g., 2:29-30).

“wellbore” relates to, without limitation, open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“tubular member” relates to, without limitation, casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12).

“window” (in tubular member) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“liner stub” relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

“extendable” (the liner stub) relates to, without limitation, adapted for running-in (e.g., 7:66-67, 10:7-11), or adapted for telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49).



93. The apparatus according to Claim 92, wherein the primary wellbore is substantially vertical.

Same as Claim 92, especially: 1:14, 1:19, 2:59-60, 2:62, 2:67, 7:26, 16:43, FIG. 3b.

Notes:

“substantially vertical” (wellbore) relates to, without limitation, vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

94. The apparatus according to Claim 92, wherein the tubular member is in the form of a casing patch having an outside diameter less than the drift diameter of preexisting casing in the primary wellbore.

Same as Claim 92, especially: 16:17-20.

Notes:

“casing patch having . . .” relates to, without limitation, special casing patch (e.g., 16:17-20).

95. The apparatus according to Claim 92, wherein the tubular member is a section of casing in the primary wellbore.

Same as Claim 92, especially: 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12.

Notes:

“section of casing” relates to, without limitation, casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12).

96. The apparatus according to Claim 92, wherein the tubular member further comprises a drillable plug closing the window.

Same as Claim 92.

Notes:

“drillable plug” (closing the window) relates to, without limitation, drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60).

97. The apparatus according to Claim 92, wherein the liner stub is a telescopic liner stub.

Same as Claim 92.

Notes:

“telescopic liner stub” relates to, without limitation, telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

98. The apparatus according to Claim 97, wherein said telescopic liner stub is hydraulically extendable.

Same as Claim 97, especially: 8:54-9:27, 16:21, 16:41-49.

99. The apparatus according to Claim 98, wherein said telescopic liner stub is a mobile liner stub slidably mounted and supported during run-in and guided during its extension by a tubular guide made of drillable material and attached to said tubular member by drillable fasteners.

Same as Claim 98,  
especially: 8:54-9:27, 16:21, 16:41-49.

Notes:

“mobile liner stub” relates to, without limitation,  
telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21,  
16:41-49).

“tubular guide” relates to, without limitation,  
tubular guides or cages of drillable metal, such as a fixed guide  
for a telescopic liner stub and mobile guide (e.g., 8:62-9:1,  
FIG. 4, 16:28-31, FIG. 10).

100. The apparatus according to Claim 99, wherein said mobile liner stub is terminated by a drillable collar.

Same as Claim 99.

Notes:

“drillable collar” relates to, without limitation,  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

101. The apparatus according to Claim 100, wherein said window is elliptical and said drillable collar has an elliptical shape to provide mating contact with said elliptical window.

Same as Claim 100.

Notes:

“elliptical window” relates to, without limitation,  
elliptical window (e.g., 15:30-40; 16:54-17:29).

102. The apparatus according to Claim 100, wherein the mobile liner stub includes a sealing material at the collar.

Same as Claim 100.

Notes:

“sealing material” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

103. The apparatus of Claim 92 further comprising: a lateral liner run into the lateral well, said lateral liner being hung from the lower end of said liner stub extending from said tubular member.

Same as Claim 92,  
additionally:

Notes:

“lateral liner” relates to, without limitation,  
smaller diameter liner (e.g., 8:35-39 referring back to 6:33-44),  
or  
coil tubing (e.g., 8:35-39 referring back to 6:33-44).

104. (AMENDED) In a method of drilling and completing a branched cased well for oil recovery wherein the subsurface intersection between tubular members in a well are permanently sealed, the [sealed wherein the] tubular members are open to the passage of fluid and well tools through the intersection, and the well has a tubular well casing with an opening in the wall thereof communicating with a subsurface cavity formed external to the casing,

the method comprising the steps of:

(a) positioning a tubular member to intersect with the well casing, the tubular member having a sufficient length to extend from the interior of the casing, through the casing wall opening and externally from the casing into the cavity;

(b) inserting settable material into the subsurface cavity at the intersection between the tubular member and the casing and allowing the settable material to set up thereby sealing the intersection; and

(c) thereafter removing at least a portion of the tubular member at the intersection to provide a passageway through the casing at the intersection for fluid flow and tool passage through the intersection.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“cased well” relates to, without limitation, vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43), deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31), or,

lower part of a deviated well is an example of one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b).

“tubular member” relates to, without limitation,

casing, e.g., casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12),

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

“permanently sealed” relates to, without limitation,

obtaining a “pressure-tight connection” (e.g., 1:44-50), or

obtaining a “leak-proof connection” (e.g., 2:29-30).

“opening” (in the casing) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“positioning” relates to, without limitation,

tying-in (e.g., 1:44-50, 2:67-3:4, 8:10-16, 16:54-60),

running-in (e.g., 7:66-67, 10:7-11), or

telescopically extending (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but does not require sealing (cf. following step), and

does not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“inserting” (settable material) relates to, without limitation,

“cementing” (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58).

“settable material” relates to, without limitation,

“cement” (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58), or

Furan or other known heat-hardened resin/cement slurries (e.g., 8:34-38 referring back to 6:7-9).

“removing” relates to, without limitation,

drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“at least a portion at the intersection . . .” relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or  
drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

“to provide a passageway . . .” relates to, without limitation,

- a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),
- b. to leave full openings in well (e.g., 8:21-30),
- c. so that entire casing space available (e.g., 10:11-19), or
- d. to restore well to full drift diameter (e.g., 16:43-44).

105. A method of drilling and completing a branched cased well for forming a permanently sealed intersection in a subterranean formation between the tubular members of a subterranean well wherein the well has a tubular well casing, the method comprising the steps of:

(a) removing material from the formation to form a subsurface cavity outside the tubular well casing at the location of the intersection;

(b) forming an opening in the tubular well casing at the intersection location;

(c) installing a tubular member extending from within the tubular well casing and into the subsurface cavity;

(d) cementing the intersection between the tubular member and tubular well casing; and

(e) removing at least a portion of the tubular member located in the tubular well casing at the intersection to form a channel in the tubular well casing through the intersection for fluid flow and for tool access.

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“cased well” relates to, without limitation,

vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43), deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31), or

lower part of a deviated well is an example of one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b).

“permanently sealed” relates to, without limitation,

obtaining a “pressure-tight connection” (e.g., 1:44-50), or

obtaining a “leak-proof connection” (e.g., 2:29-30).

“tubular member” relates to, without limitation,

casing, e.g., casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12),

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

“removing material from the formation . . .” relates to, without limitation,

“under-reaming (e.g., 8:58-9:6, 16:11-16, FIG. 10).

“forming” (an opening in the casing) relates to, without limitation,

machining a pre-established window (e.g., 4:40-45, 16:36),

drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or

milling the tubular member (e.g., casing) using milling tool and whipstock (e.g., 15:30-40; 16:54-17:29).

“opening” (in the casing) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“installing” (a tubular member) relates to, without limitation,

tying-in (e.g., 1:44-50, 2:67-3:4, 8:10-16, 16:54-60),

running-in (e.g., 7:66-67, 10:7-11), or

telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but does not require sealing (cf. following step), and

does not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“cementing” relates to, without limitation,

“cementing” (e.g., 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58).

“removing” relates to, without limitation,  
drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“at least a portion at the intersection . . .” relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or  
drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

“to form a channel . . .” relates to, without limitation,

- a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),
- b. to leave full openings in well (e.g., 8:21-30),
- c. so that entire casing space available (e.g., 10:11-19), or
- d. to restore well to full drift diameter (e.g., 16:43-44).

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106. The method according to either of Claims 104 or 105 wherein said opening in said tubular well casing is formed by removing an axially extending portion of said tubular casing.

Same as Claims 104 or 105.

Notes:

“axially extending portion” relates to, without limitation, milled out interval (e.g., 16:11-16, FIG. 10).

107. The method according to either of Claims 104 or 105 wherein said opening in said tubular cased well is formed by cutting a window in the wall of said tubular casing.

Same as Claims 104 or 105.

Notes:

“cutting” relates to, without limitation, machining a pre-established window (e.g., 4:40-45, 16:36), drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or milling the tubular member (e.g., casing) using milling tool and whipstock (e.g., 15:30-40; 16:54-17:29).

“window” (in casing) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

108. The method according to either of Claims 104 or 105 wherein said subsurface cavity is an undercut portion.

Same as Claims 104 or 105.

Notes:

“undercut portion” relates to, without limitation, a portion at the bottom of the wellbore (e.g., 8:58-9:6).

109. The method according to either of Claims 104 or 105 wherein said subsurface cavity is a branch borehole.

Same as Claims 104 or 105.

110. The method according to either of Claims 104 or 105 additionally comprising the step of:

setting a tubular housing with a preformed window in the wall thereof in a location in the casing at the subsurface cavity and positioning said tubular member to extend through the preformed window.

Same as Claims 104 or 105.

Notes:

“setting” (a tubular housing) relates to, without limitation, make-up, run-in, and cementing (e.g., 7:29-34, 8:49-57, 16:11-20, 16:45-49).

“tubular housing” relates to, without limitation, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

“preformed window” (in the housing) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“positioning” (said tubular member) relates to, without limitation, tie-in (e.g., 1:44-50, 2:67-3:4, 8:10-16, 16:54-60), run-in (e.g., 7:66-67, 10:7-11), or telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but does not require sealing (cf. dependent Claim 26), and does not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

111. The method according to either of Claims 104 or 105 wherein the tubular member includes a flanged element larger than the window and additionally comprising the step of positioning the flanged element in contact with the peripheral edges of the window.

Same as Claims 104 or 105.

Notes:

“flanged element . . .” relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“positioning the flanged element in contact . . .” relates to, without limitation, running-in (e.g., 7:66-67, 10:7-11), or telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49), but does not require sealing (cf. dependent Claim 26), and does not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).



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112. The method according to either of Claims 104 or 105 additionally comprising the step of:

installing a tubing connector in said tubular member and thereafter using said connector to connect production tubing to said tubular member.

Same as Claims 104 or 105.

Notes:

“installing” (a tubular connector) relates to, without limitation, well or tubing completion (e.g., 10:30-33 referring to 7:2-23 and 8:40-43).

“tubular connector” relates to, without limitation, a polished bore receptacle (e.g., 8:39-44, 5:33-46 and FIG. 1c, 9:28-66 and FIG. 4a-b, 10:30-33).

“production tubing” relates to, without limitation, production tubing string assembly (e.g., 7:2-23).

113. The method according to either of Claims 104 or 105 wherein said removing step comprises removing all of the tubular member extending within the tubular casing at the intersection to provide an unrestricted full bore channel in the cased well through the intersection for fluid flow and for tool passage therethrough.

Same as Claims 104 or 105.

114. The method according to either of Claims 104 or 105 additionally comprising the step of:

installing a diverter in the tubular well casing prior to installing the tubular member and thereafter using the diverter to position the tubular member in the well casing.

Same as Claims 104 or 105.

Notes:

“diverter” relates to, without limitation, something that provides a curved guiding path from a guide plate above to the (plugged) window(s) (e.g., 4:48-54), something that provides a curved guiding surface that matches the depth, width and orientation of the window (e.g. 7:54-58), something that guides the liner during its outward extension (8:62-9:1), retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

115. The method of Claim 104 wherein settable material is cementitious.

Same as Claim 104.

116. The method according to either of Claims 104 or 105 wherein the removed portion of the tubular member includes a collar.

Same as Claims 104 or 105.

117. (AMENDED) The method of Claim 104 additionally comprising installing a whipstock in the tubular casing prior to installing the tubular member [and thereafter cutting at least a portion of the whipstock to reopen the tubular well casing through the intersection for fluid flow and tool access].

Same as Claim 104.

Notes:

“cutting” (at least a portion of the whipstock) relates to, without limitation,

drilling or milling out a supporting whipstock packer (e.g., 8:21-34), and/or

drilling or milling out drillable guide (e.g., 16:41-49).

“to reopen . . .” relates to, without limitation,

- a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),
- b. to leave full openings in well (e.g., 8:21-30),
- c. so that entire casing space available (e.g., 10:11-19), or
- d. to restore well to full drift diameter (e.g., 16:43-44).

118. (CANCELED) The method according to either of Claims 104 or 105 wherein at least one opening is present in the wall of at least one of the tubular members and additionally comprising the step of flowing cement through the opening and into the intersection to seal the intersection.

CANCELED.

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-- 119. The method of Claim 13, wherein the step of removing said removable portion of said diverter to reopen the primary borehole further comprises: milling said removable portion of said diverter. --

-- 120. The method of Claim 8, further comprising the step of: positioning a diverter at the entrance to said branch borehole; and diverting said second portion of said tubular member into said branch borehole using said diverter. --

-- 121. The method of Claim 120, further comprising the step of: removing at least a portion of said diverter to reopen the primary borehole. --

Same as Claim 13,

Notes:

"milling" said diverter, e.g., tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

Same as Claim 8,

especially: 7:48-8:11, FIGS. 3b and 3c, 8:54-9:27, FIG. 4, 10:4-8, 15:30-35, 16:28-31, FIG. 10; and additionally: 4:48-54.

Notes:

"diverter" relates to, without limitation, something that provides a curved guiding path from a guide plate above to the (plugged) window(s) (e.g., 4:48-54), something that provides a curved guiding surface that matches the depth, width and orientation of the window (e.g. 7:54-58), something that guides the liner during its outward extension (8:62-9:1), retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

Same as Claim 120.

No! different embodiment.

-- 122. The method of Claim 120, wherein the step of removing at least a portion of said diverter comprises: milling said diverter. --

Same as Claim 120.

Notes:

“diverter” relates to, without limitation,

something that provides a curved guiding path from a guide plate above to the (plugged) window(s) (e.g., 4:48-54),

something that provides a curved guiding surface that matches the depth, width and orientation of the window (e.g. 7:54-58),

something that guides the liner during its outward extension (8:62-9:1),

retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10);

“milling” said diverter related to, without limitation,

milling, e.g., tubular guides or cages of drillable metal, such as a fixed guide for a telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4, 16:28-31, FIG. 10).

-- 123. The method of Claim 8, including the step of sealing said tubular member at said intersection between said primary and branch boreholes.

Same as Claim 8,

especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11, 16:17-58 and FIG. 3b and 10.

-- 124. The method of Claim 123, wherein said sealing step comprises the delivery of cementitious slurry between (1) said tubular member and (2) said primary borehole. --

Same as Claim 123.

-- 125. The well of Claim 29, wherein said primary borehole includes casing. --

Same as Claim 29,

especially: 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:13.

Notes:

“casing” relates to, without limitation,

casing,

special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or

special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

-- 126. The well of Claim 125, further comprising: an opening in said casing at the site of the intersection between said primary borehole and said branch borehole, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole. --

Same as Claim 125,  
especially: 2:25-29, 4:40-45, 7:25-67, 8:45-62, 9:67-10:7, 16:54-17:29, and FIGS. 4, 10, and 11; and  
additionally: 4:35-48 and FIG. 1.

Notes:

“opening” (in said casing) relates to, without limitation,  
elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“casing” relates to, without limitation,  
special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or  
special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

“being formed” relates to, without limitation,  
machining a pre-established window (e.g., 4:40-45, 16:36),  
drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60), or  
milling the casing using milling tool and whipstock (e.g., 15:30-40; 16:54-17:29).

“installation of said casing” relates to, without limitation,  
make-up, run-in, and cementing (e.g., 7:29-34, 8:49-57, 16:11-20, 16:45-49).

-- 127. The well of Claim 126, wherein said first portion of said tubular member resides in said casing and said second portion of said tubular member extends through said opening and into said branch borehole. --

Same as Claim 126.

-- 128. The well of Claim 127, wherein said tubular member is a liner. --

Same as independent Claim 127,  
especially: 1:25-50, 2:30-31, 3:49, 7:64-8:15, FIG. 3a, 10:7-19, FIG. 4, 16:7-44, FIG. 10, and 16:54-58.

Notes:

“liner” includes without limitation,

a liner of medium to short radius of curvature (e.g., 1:19-24, 1:46-48) and of sufficient diameter to allow the passage of available well logging, perforating, cementing, and cleaning tools, for subsequent maintenance and repairs (e.g., 1:46-50), e.g.,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or  
telescopic liner stub (e.g., 8:54-9:27, 16:21, 16:41-49).

a liner, in the horizontal part, may be a slotted liner equipped with screens for gravel packing or it may be cemented and later selectively perforated (e.g., 5:8-11).

-- 129. The well of Claim 28, wherein the primary borehole is reopened when said section of said first portion of said tubular member is removed. --

Same as Claim 28.

-- 130. The well of Claim 129, wherein the removed section of said first portion of said liner comprises a drillable collar. --

Same as Claim 129,  
especially: 8:21-34, 10:11-19, 16:41-49.

-- 131. The well of Claim 130, wherein the primary borehole is reopened when the drillable collar is removed. --

Same as Claim 130.

-- 132. The well of Claim 129, wherein said tubular member is a liner. --

Same as Claim 129,  
especially: 1:25-50, 2:30-31, 3:49, 7:64-8:15, FIG. 3a, 10:7-19, FIG. 4, 16:7-44, FIG. 10, and 16:54-58.

Notes:

“liner” includes without limitation,

- a liner of medium to short radius of curvature (e.g., 1:19-24, 1:46-48) and of sufficient diameter to allow the passage of available well logging, perforating, cementing, and cleaning tools, for subsequent maintenance and repairs (e.g., 1:46-50), e.g.,
- intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub (e.g., 8:54-9:27, 16:21, 16:41-49).
- a liner, in the horizontal part, may be a slotted-liner equipped with screens for gravel packing or it may be cemented and later selectively perforated (e.g., 5:8-11).

-- 133. The well of Claim 28 wherein the section of said first portion of said tubular member being removed defines an opening therethrough. --

Same as Claim 28.

Notes:

“opening” (in said section of the first portion of the tubular member) is functionally defined by the “such that” clause of this independent claim, and can be, but need not be, a window (compare and contrast dependent Claim 30, wherein the “opening” is provided by entirely removing said section of the first portion to reopen the blocked borehole).

-- 134. The well of Claim 124 wherein said tubular member is a liner. --

Same as Claim 133,  
especially: 1:25-50, 2:30-31, 3:49, 7:64-8:15, FIG. 3a, 10:7-19, FIG. 4, 16:7-44, FIG. 10, and 16:54-58.

Notes:

"liner" includes without limitation,

- a liner of medium to short radius of curvature (e.g., 1:19-24, 1:46-48) and of sufficient diameter to allow the passage of available well logging, perforating, cementing, and cleaning tools, for subsequent maintenance and repairs (e.g., 1:46-50), e.g.,
- intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub (e.g., 8:54-9:27, 16:21, 16:41-49).
- a liner, in the horizontal part, may be a slotted liner equipped with screens for gravel packing or it may be cemented and later selectively perforated (e.g., 5:8-11).

-- 135 The lateral seal and control system as claimed in Claim 40, wherein said secondary borehole tubular member is for fluid flow production through the tubular member. --

Same as Claim 40.

Notes:

"secondary borehole tubular member" relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49), especially in cases that do not require any "tubing completion" (e.g., "simple tubing completion" for "commingled" flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional "direct connection of each drainhole separately to a tubing" at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

-- 136. The lateral seal and control system as claimed in Claim 40, wherein said secondary borehole tubular member is a liner. --

Same as Claim 40.

Notes:

"secondary borehole tubular member" relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

-- 137. The lateral seal and control system as claimed in Claim 46, wherein said primary borehole tubular member is a casing. --

Same as Claim 46,  
especially: 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:13.

Notes:

"casing" relates to, without limitation,

- casing,
- special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or
- special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

-- 138. The lateral seal and control system as claim in Claim 49, wherein said secondary borehole tubular member is a liner.

--

Same as Claim 49.

Notes:

"secondary borehole tubular member" relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

-- 139. The method for sealing the juncture between a branch wellbore and a parent wellbore according to any one of Claims 53, 54, 55, 56, or 57, further comprising the step of casing said parent wellbore. --

Same as Claim 53, especially: 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:13.

Notes:

"casing" relates to, without limitation, casing, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

-- 140. The method for sealing the juncture between a branch wellbore and a parent wellbore according to Claim 53, wherein the flange is a drillable material. --

Same as Claim 53, especially: 8:21-34, 10:11-19, 16:41-49.

Notes:

"flange is a drillable material" relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

-- 141. The method of Claim 117 additionally comprising the step of: removing the whipstock to reopen the tubular well casing through the intersection for fluid flow and tool access after installing the tubular member. --

Same as Claim 117, especially: 8:21-34, 16:41-49.

Notes:

"removing the whipstock" relates to, without limitation, latching onto and pulling out a whipstock (e.g., 8:21-34).



-- 142. A method for forming an intersecting junction between a first tubular member and a second tubular member at a remote downhole location for well fluid production through the intersecting junction, the method comprising the steps of:

- (a) running the first tubular member to the remote downhole location, the first tubular member carrying the second tubular member therein; and
- (b) extending at least a portion of the second tubular member through a window in the first tubular member at the remote downhole location. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“remote downhole location” relates to, without limitation, open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“first tubular member” relates to, without limitation, casing joint or casing patch (e.g., 4:35-48, 7:29-43, 8:49-57, 16:11-20, 16:45-49, 17:12).

“second tubular member” relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49).

“carrying” related to, without limitation,

supported during running-in (e.g., 7:66-67, 8:62, 10:7-11),

“extending” (the second tubular member through a window in the first tubular member) relates to, without limitation,

telescopically extending, (e.g., 2:67-3:4, 8:57-9:1, 16:17-49).

-- 143. The method of Claim 142, wherein one end of the second tubular member has an end formed to conform with the periphery of the window. --

Same as Claim 142,  
especially: 9:2-13, 16:54-17:29 and FIGS. 3a, 4, and 10.

Notes:

“end formed . . .” relates to, without limitation,  
upper end machined as shown in FIG. 3a so as to conform with  
the inner edge of the window (e.g., 19:2-13, 6:54-17:29,  
FIG. 3a).

-- 144. The method of Claim 142, wherein the second tubular member further comprises: a shoulder portion at one end thereof for engaging a periphery of the window, whereby the shoulder portion stops further extension of the second tubular member through the window. --

Same as Claim 142,  
especially: 9:2-13, 16:54-17:29 and FIGS. 3a, 4, and 10.

Notes:

“shoulder portion . . .” relates to, without limitation,  
a flange or collar portion at upper end machined as shown in FIG.  
3a so as to conform with the inner edge of the window (e.g.,  
19:2-13, 6:54-17:29, FIG. 3a), and/or  
any protruding obstruction (e.g., 17:8-11).

-- 145. The method of Claim 144, wherein the shoulder portion further comprises: a circumferential flange for engaging the entire periphery of the window when the second tubular member is extended through the window in the first tubular member. --

Same as Claim 144,  
especially: 9:2-13, 16:54-17:29 and FIGS. 3a, 4, and 10.

-- 146. The method of Claim 147, further comprising the step of: orienting the flanged portion of the second tubular member relative to the window in the first tubular member. --

Same as Claim 145,  
especially: 8:62-9:12.

Notes:

“orienting” (the flanged portion relative to the window) relates to,  
without limitation,  
guiding the second tubular member during its outward extension.

-- 147. The method of Claim 145, wherein the flanged portion further comprises: an elastomeric sealing element. --

Same as Claim 145.

Notes:

“elastomeric sealing element” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

-- 148. The method of Claim 145, wherein the flanged portion further comprises: resilient sealing material thereon. --

Same as Claim 145.

Notes:

“resilient sealing material” relates to, without limitation, rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

-- 149. The method of Claim 145, further comprising the step of removing the flanged portion of the second tubular member remaining in the first tubular member after extending the second tubular member through the window. --

Same as Claim 145,

especially: 8:21-34, 10:11-19, 16:41-49.

Notes:

“removing” relates to, without limitation, drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“flanged portion” (of the first tubular member) relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

-- 150. The method of Claim 142, wherein after extending at least a portion of the second tubular member through the window, at least a portion of the second tubular member remains in the first tubular member. --

Same as Claim 142,

Notes:

“at least a portion of the second tubular member remains” relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or  
drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

-- 151. The method of Claim 150, further comprising the step of removing at least a section of the portion of the second tubular member remaining in the first tubular member. --

Same as Claim 150.

Notes:

“removing . . .” (said tubular member) relates to, without limitation, drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

-- 152. The method of Claim 150, wherein the portion of the second tubular member remaining in the first tubular member is a flanged portion at one end of the second tubular member for engaging the periphery of the window. --

Same as Claim 150,

Notes:

“flanged portion” relates to, without limitation,

a flange or collar portion at upper end machined as shown in FIG. 3a so as to conform with the inner edge of the window (e.g., 19:2-13, 6:54-17:29, FIG. 3a).

-- 153. The method of Claim 150 wherein the first tubular member is a casing joint. --

Same as Claim 150.

Notes:

"casing joint" relates to, without limitation, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

-- 154. The method of Claim 142, wherein the first tubular member is a casing patch having an outside diameter less than the drift diameter of preexisting casing in a wellbore. --

Same as Claim 142, especially: 16:11-20, 16:45-49, 17:13, FIG. 10.

Notes:

"casing patch having . . ." relates to, without limitation, special casing patch (e.g., 16:11-20, 16:45-49, 17:13, FIG. 10).

-- 155. The method of Claim 142, wherein the window in the first tubular member is pre-formed before running the first tubular member to the remote location. --

Same as Claim 142.

Notes:

"preformed window (in the first tubular member) relates to, without limitation, premachined elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

-- 156. The method of Claim 155, wherein the first tubular member further comprises a drillable plug closing the window. --

Same as Claim 155.

Notes:

"drillable plug" relates to, without limitation, drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60).

-- 157. The method of Claim 142, further comprising the step of: forming the window in the first tubular member at the remote downhole location after running the first tubular member to the remote location. --

Same as any one of Claims 142, especially: 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:54-17:29.

Notes:

"drilling" (a window in the tubular member) relates to, without limitation, drilling a drillable plate or plug in a pre-established window (e.g., 4:35-48, 7:36-38, 7:54-57, 7:64, 10:4-7, 16:57-60).

-- 158. The method of Claim 142, wherein the step of extending at least a portion of the second tubular member through the window in the first tubular member at the remote downhole location comprises the steps of: positioning a diverter adjacent the window in the first tubular member; and diverting at least a portion of the second tubular member through the window in the first tubular member. --

-- 159. The method of Claim 158, wherein the diverter comprises a tubular guide for supporting and directing the second tubular member as it is extended through the window in the first tubular member. --

-- 160. The method of Claim 158, further comprising the step of: after diverting at least a portion of the second tubular member through the window in the first tubular member, removing the diverter to reopen the first tubular member to fluid flow and tool access through the intersecting junction between the first tubular member and the second tubular member. --

-- 161. The method of Claim 160, wherein the step of removing the diverter comprises: drilling out the diverter. --

Same as Claim 142,  
especially: 7:48-8:11, FIGS. 3b and 3c, 8:54-9:27, FIG. 4, 10:4-8,  
15:30-35, 16:28-31, FIG. 10; and  
additionally: 4:48-54.

Notes:

“diverter” relates to, without limitation,  
something that provides a curved guiding path from a guide plate  
above to the (plugged) window(s) (e.g., 4:48-54),  
something that provides a curved guiding surface that matches  
the depth, width and orientation of the window (e.g. 7:54-  
58),  
something that guides the liner during its outward extension  
(8:62-9:1),  
retrievable whipstock (e.g., 7:49-50, 10:4-7, 15:34-35), or  
tubular guides or cages of drillable metal, such as a fixed guide  
for a telescopic liner stub and mobile guide (e.g., 8:62-9:1,  
FIG. 4, 16:28-31, FIG. 10).

Same as 158.

Notes:

tubular guides or cages of drillable metal, such as a fixed guide for a  
telescopic liner stub and mobile guide (e.g., 8:62-9:1, FIG. 4,  
16:28-31, FIG. 10).

Same as Claim 158.

Notes:

“removing . . .” (the diverter) relates to, without limitation,  
drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).  
“diverter” relates to, without limitation,  
drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).  
“to reopen . . .” relates to, without limitation,  
a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),  
b. to leave full openings in well (e.g., 8:21-30),  
c. so that entire casing space available (e.g., 10:11-19), or  
d. to restore well to full drift diameter (e.g., 16:43-44).

Same as Claim 160,  
especially “drilling” (e.g., 8:21-34, 10:11-19, 16:41-49).

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-- 162. The method of Claim 142, wherein the second tubular member is a liner. --

Same as independent Claim 142, especially: 1:25-50, 2:30-31, 3:49, 7:64-8:15, FIG. 3a, 10:7-19, FIG. 4, 16:7-44, FIG. 10, and 16:54-58.

Notes:

"liner" includes without limitation,

- a liner of medium to short radius of curvature (e.g., 1:19-24, 1:46-48) and of sufficient diameter to allow the passage of available well logging, perforating, cementing, and cleaning tools, for subsequent maintenance and repairs (e.g., 1:46-50), e.g.,
- intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub (e.g., 8:54-9:27, 16:21, 16:41-49).
- a liner, in the horizontal part, may be a slotted liner equipped with screens for gravel packing or it may be cemented and later selectively perforated (e.g., 5:8-11).

-- 163. The method of Claim 164, wherein the liner is a telescopic liner stub. --

Same as Claim 162, especially: 8:54-9:27, 16:21, 16:41-49.

-- 164. The method of Claim 163, wherein the step of extending the telescopic liner stub comprises hydraulically extending the telescopic liner stub. --

Same as Claim 163, especially: 8:54-9:27, 16:21, 16:41-49.

-- 165. The method of Claim 165, wherein the telescopic liner stub is a mobile liner stub slidably mounted and supported during run-in and guided during its extension by a tubular guide made of drillable material and attached to the first tubing member by drillable fasteners. --

Same as Claim 163, especially: 8:54-9:27, 16:21, 16:41-49.

-- 166. The method of Claim 163, wherein the mobile liner stub is terminated at one end thereof by a drillable collar. --

Same as Claim 163, especially: 8:54-9:27, 16:21, 16:41-49.

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-- 167. The method of Claim 166, wherein the window is elliptical and the drillable collar has an elliptical shape to provide mating contact with the periphery of the elliptical window. --

Same as Claim 166,  
especially: 8:54-9:27, 16:21, 16:41-49.

-- 168. The method of Claim 166, wherein the mobile liner stub further comprises: a sealing material at the drillable collar. --

Same as Claim 166,  
especially: 8:5-6, 9:2-3.

Notes:

“sealing material” relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6; 9:2-3).

-- 169. The method of Claim 142, further comprising the step of: forming a cavity at the remote downhole location. --

Same as Claim 142.

Notes:

“forming a cavity” relates to, without limitation,  
branch wellbore, or  
under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16,  
FIG. 10).

-- 170. The method of Claim 169, wherein the step of forming a cavity at the remote downhole location comprises: underreaming to enlarge a wellbore to the remote downhole location. --

Same as Claim 169.

-- 171. The method of Claim 170, wherein the step of forming a cavity at the remote downhole location comprises: milling out a portion of a preexisting casing of a wellbore to the remote downhole location, and underreaming where the preexisting casing has been milled out. --

Same as Claim 170.

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-- 172. The method of Claim 169, wherein the step of forming a cavity at the remote downhole location comprises: drilling a branch wellbore through the window in the first tubular member. --

Same as Claim 169.

-- 173. The method of claim 142, further comprising the step of cementing the exterior of the intersecting junction between the first tubular member and the second tubular member after extending the second tubular member through the window. --

Same as Claim 142,  
especially: 1:44-50, 2:67-3:4, 7:65-67, 8:11-22, 9:10-16, 10:7-11,  
16:17-58 and FIG. 3b and 10.

-- 174. A well having an intersecting junction between a first tubular and a second tubular formed in accordance with the method of any one of Claims 142-173. --

Same a Claims 142-173.



-- 175. A method for sealing the junction between a branch wellbore and a parent wellbore comprising:

(a) installing a housing having a premachined window therein such that said premachined window is aligned with said branch borehole;

(b) running through said premachined window, a pipe having a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; and

(c) urging said flange against a periphery of said premachined window to seal said flange with said periphery of said premachined window. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation, open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“housing” relates to, without limitation, special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or special casing patch (e.g., 16:11-20, 16:45-49, 17:13).

“premachined window” (in the housing) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

“pipe” relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“flange” (of said production tube) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“uphole end” of said production tube) relates to, without limitation, upper end of liner stub (e.g., 9:2-3), or tail end (drillable collar) (e.g., 16:41-42).

“urging . . . to seal . . .” relates to, without limitation, dropping a ball or plug to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing (e.g., 8:15-18).

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-- 176. A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 175, wherein said flange includes a seal material. --

Same as Claim 175,  
especially: 8:5-6, 9:2-3.

Notes:

"seal material" relates to, without limitation,  
rubber gasket or plastic sealing material (e.g., 8:5-6, 9:2-3).

-- 177. A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 176, wherein said seal material is elastomeric material. --

Same as Claim 176,  
especially: 8:5-6, 9:2-3.

-- 178. A method for sealing the junction between a branch wellbore and a parent wellbore, wherein the branch wellbore extends from an opening in the parent wellbore, the method comprising:

(a) running through said opening in said parent wellbore, a tubular member having a flange at an uphole end thereof, said flange being of larger dimension than said opening; and

(b) urging said flange against a periphery of said opening to seal said flange with said periphery of said opening. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or

under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“opening” (in parent wellbore) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 16:36, 16:54-17:29, FIG. 11),

side-track window (e.g., 15:30-40), or

milled out interval of parent wellbore (e.g., 8:58-9:6, 16:11-16, FIG. 10, also compare to dependent Claim 60).

“tubular member” relates to, without limitation,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion”

(e.g., “simple tubing completion” for “commingled” flow at

1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“flange” (of said production tube) relates to, without limitation,

drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“uphole end” of said production tube) relates to, without limitation,

upper end of liner stub (e.g., 9:2-3), or

tail end (drillable collar) (e.g., 16:41-42).

“urging . . . to seal . . .” relates to, without limitation,

dropping a ball or plug to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing (e.g., 8:15-18).

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-- 179. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 178, wherein the step of urging includes applying pressure to the flange of said tubular member. --

Same as Claim 178,  
especially: 8:15-18.

-- 180. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 179, wherein the step of applying pressure includes closing said tubular member at a point below said flange and delivering a fluid to a bore of said tubular member to seal said flange with said periphery of said opening. --

Same as Claim 179,  
especially: 8:15-18.

-- 181. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 178, wherein the step of urging includes closing said tubular member at a point below said flange and applying pressure to the tubular member at the downhole end to seal said flange with said periphery of said opening. --

Same as Claim 178,  
especially: 8:15-18.

-- 182. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 181, wherein the step of closing said tubular member is performed by a packer located in the tubular member at a point below the flange. --

Same as Claim 178,  
especially: 8:15-18.

-- 183. A method for sealing the junction between a branch wellbore and a parent wellbore, wherein the branch wellbore extends from an opening in the parent wellbore, the method comprising:

(a) running through said opening in said parent wellbore and into said branch wellbore a tubular member having a flange located along its length, said flange being of larger dimension than said opening;

(b) delivering a sealing material through a bore in said tubular member to the annular space between the tubular member and the branch wellbore; and

(c) urging said flange against a periphery of said opening to seal said flange with said periphery of said opening. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or

under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“opening” (in parent wellbore) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 16:36, 16:54-17:29, FIG. 11),

side-track window (e.g., 15:30-40), or

milled out interval of parent wellbore (e.g., 8:58-9:6, 16:11-16, FIG. 10, also compare to dependent Claim 60).

“tubular member” relates to, without limitation,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“flange” (of said production tube) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“sealing material delivery pipe” relates to, without limitation,

“the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“closing the annular space . . .” relates to, without limitation,

“the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“urging . . . to seal . . .” relates to, without limitation,

dropping a ball or plug to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing (e.g., 8:15-18).

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-- 184. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 183, further comprising the step of removing any portion of the tubular member remaining in the parent wellbore. --

Same as Claim 183.

Notes:

“removing” relates to, without limitation,

drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“at least a portion” (of the first tubular member) relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),

drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or

drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

-- 185. A method for sealing the junction between a branch wellbore and a parent wellbore, wherein the branch wellbore extends from an opening in the parent wellbore, the method comprising:

(a) running through said opening in said parent wellbore and into said branch wellbore a tubular member having a flange located along its length, said flange being of larger dimension than said opening;

(b) inserting a sealing material delivery pipe through a bore in the tubular member;

(c) closing the annular space between said delivery pipe and said tubular member; and

(d) delivering a sealing material through said delivery pipe to the annular space between the tubular member and the branch wellbore. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation, open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43); deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31); horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56); lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“opening” (in parent wellbore) relates to, without limitation, elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 16:36, 16:54-17:29, FIG. 11), side-track window (e.g., 15:30-40), or milled out interval of parent wellbore (e.g., 8:58-9:6, 16:11-16, FIG. 10, also compare to dependent Claim 60).

“tubular member” relates to, without limitation, intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“flange” (of said production tube) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“sealing material delivery pipe” relates to, without limitation, “the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“closing the annular space . . .” relates to, without limitation, “the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

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-- 186. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 185, further comprising the step of urging said flange against a periphery of said opening to seal said flange with said periphery of said opening. --

Same as Claim 185,  
additionally, 8:15-18.

Notes:

“urging . . . to seal . . .” relates to, without limitation,  
dropping a ball or plug to close the shoe and casing mud pressure  
is increased to firmly apply the drillable collar against the  
inner surface of the casing (e.g., 8:15-18).

-- 187. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 186, wherein the step of urging comprises closing said tubular member at a point below said flange and applying pressure to the tubular member at the closed point to seal said flange with said periphery of said opening. --

Same as Claim 186.

-- 188. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 186, wherein the step of urging comprises applying pressure to the flange of said tubular member. --

Same as Claim 186.

-- 189. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 188, wherein the step of applying pressure comprises closing said tubular member at a point below said flange and delivering a fluid to a bore of said tubular member to seal said flange with said periphery of said opening. --

Same as Claim 186.



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-- 190. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 189, wherein the step of closing the annular space is performed by a packer located in the tubular member at a point below said flange. --

Same as Claim 186.

-- 191. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 186, wherein the step of closing the annular space is performed by a packer located in the tubular member at a point below said flange. --

Same as Claim 186.

-- 192. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 191, wherein the step of closing said tubular member is performed by said packer. --

Same as Claim 186.

-- 193. A method of sealing a tubular member at the intersection of a first and second wellbore, wherein the second wellbore extends from an opening in the first wellbore, the method comprising:

inserting a tubular member having a bore therethrough and a flange along its length into the second wellbore through the opening in the first wellbore such that the flange sits on the wall of the first wellbore surrounding the opening and a portion of the liner extends into the second wellbore;

installing a sealing material delivering shoe into the portion of the tubular member extending into the second wellbore;

delivering cement from the shoe upward to the annular space between the tubular member and the second wellbore; and

applying pressure to the flange to seal the flange to the wall of the first wellbore surrounding the opening. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or

under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“opening” (in the first wellbore) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 16:36, 16:54-17:29, FIG. 11),

side-track window (e.g., 15:30-40), or

milled out interval of parent wellbore (e.g., 8:58-9:6, 16:11-16, FIG. 10, also compare to dependent Claim 60).

“tubular member” relates to, without limitation,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“flange” (of said production tube) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“sealing material delivery pipe” relates to, without limitation,

“the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“closing the annular space . . .” relates to, without limitation,

“the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“applying pressure . . . to seal . . .” relates to, without limitation,

dropping a ball or plug to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing (e.g., 8:15-18).

-- 194. The method of sealing a tubular member at the intersection of a first and second wellbore according to Claim 193, further comprising the step of inserting a casing into the first wellbore, wherein the casing has a window corresponding to the opening for the second wellbore and the flange of the tubular member sits on the surface of the casing surrounding the window. --

-- 195. The method of sealing a tubular member at the intersection of a first and second wellbore according to Claim 193, further comprising the step of removing at least a portion of the tubular member remaining in the first wellbore. --

Same as Claim 193,  
additionally: 4:35-48, 7:29-50, 8:49-9:17, 16:11-37, 16:45-49,  
17:13, and FIGS. 4 and 10.

Notes:

“casing” relates to, without limitation,  
special casing joint (e.g., 4:35-48, 7:29-43, 8:49-57), or  
special casing patch (e.g., 16:11-20, 16:45-49, 17:13).  
“window” (in the casing) relates to, without limitation,  
elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-  
53, FIG. 4, 9:4-10; 15:30-40, 16:36, 16:54-17:29, FIG. 11).

Same as Claim 193,  
additionally: 8:21-34, 8:62-9:17, 10:11-19, 16:41-49, 17:8-11.

“removing” relates to, without limitation,  
drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).  
“at least a portion” (of the first tubular member) relates to, without  
limitation,  
any protruding obstruction (e.g., 17:8-11),  
drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or  
drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

-- 196. A method of sealing a tubular member at the intersection of a first and second wellbore, wherein the second wellbore extends from an opening in the wall of the first wellbore, the method comprising the steps of:

inserting a liner having a bore therethrough and a flange located along its length into the second wellbore through the opening in the first wellbore such that the flange sits on the wall of the first wellbore surrounding the opening and the tubular member extends into the second wellbore;

inserting a sealing material delivery pipe through the bore in the tubular member;

closing the annular space between the pipe and the tubular member;

delivering sealing material through the pipe to the space between the liner and the second wellbore;

applying pressure to the flange to seal the flange to the wall of the first wellbore surrounding the opening;

removing the cement delivery pipe; and

removing any cement in the liner in the second wellbore to reopen the second wellbore. --

Abstract; Field of Invention at 1:10-40;

Summary of Invention at 1:41-2:14, 2:25-3:19;

Brief Description of Drawings at 3:49-56 for FIGS. 3a-c and 4; at 4:1-3 for FIGS. 5a-c; and at 4:20-24 for FIGS. 10 and 11; and

Detailed Description of the Invention at 7:25-8:44, 8:45-53, 8:54-9:66 (a first embodiment), 9:67-10:34 (a second embodiment), 15:11-43, 16:8-58, 16:54-17:29, and FIGS. 3a, 3b, 3c, 4, 10, 11.

Notes:

“wellbore” relates to, without limitation,

open hole or vertical hole (e.g., 1:23, 8:59, 16:11-13, FIG. 10); vertical well (e.g., 1:14, 2:62, 7:26) or vertical cased well (e.g., 1:19, 2:59-60, 2:67 and FIG. 3b, 16:43);

deviated well (e.g., 1:28) or deviated cased well (e.g., 2:64, 3:50-51, FIG. 3b, 7:26-34 and FIG. 3b, 8:29, 15:30-31);

horizontal well (e.g., 1:10, 1:16, 1:22), horizontal drainhole (e.g., 1:18, 1:27, 7:27-28, 8:47-49, 9:15), or side-tracked hole (e.g., 7:56, 7:64, FIG. 3b, 8:29-30, 16:56);

lower part of a “deviated well” can be one of twin or multiple “drainholes” (e.g., 8:28-34 and FIG. 3b); or

under-reamed portion of vertical hole (e.g., 8:58-9:6, 16:11-16, and FIG. 10).

“opening” (in the first wellbore) relates to, without limitation,

elliptical window (e.g., 4:40-45, FIG. 1, 7:33-35, FIG. 3b, 8:49-53, FIG. 4, 9:4-10, 16:36, 16:54-17:29, FIG. 11),

side-track window (e.g., 15:30-40), or

milled out interval of parent wellbore (e.g., 8:58-9:6, 16:11-16, FIG. 10, also compare to dependent Claim 60).

“tubular member” relates to, without limitation,

intermediate liner (e.g., 7:65-8:11 and FIG. 3a, 10:7-11), or

telescopic liner stub and mobile guide (e.g., 8:54-9:27, 16:21, 16:41-49),

especially in cases that do not require any “tubing completion” (e.g., “simple tubing completion” for “commingled” flow at 1:56-63, 2:7-10, 10:20-29, contrasted to optional “direct connection of each drainhole separately to a tubing” at 1:63-2:6, 10:29-32 referring back to 7:2-23 and 8:40-43).

“flange” (of said production tube) relates to, without limitation, drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49).

“sealing material delivery pipe” relates to, without limitation, “the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“closing the annular space . . .” relates to, without limitation, “the cementing operation . . .” (e.g., 6:7-21 and 8:11-20).

“applying pressure . . . to seal . . .” relates to, without limitation, dropping a ball or plug to close the shoe and casing mud pressure is increased to firmly apply the drillable collar against the inner surface of the casing (e.g., 8:15-18).

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– 197. The method of sealing a tubular member at the intersection of a first and second wellbore according to Claim 196, further comprising the step of removing at least a portion of the flange of the tubular member to reopen the first wellbore. --

Same as Claim 196,  
additionally:

“removing” relates to, without limitation,

drilling or milling (e.g., 8:21-34, 10:11-19, 16:41-49).

“at least a portion” (of the first tubular member) relates to, without limitation,

any protruding obstruction (e.g., 17:8-11),

drillable collar (e.g., 8:21-34, 10:11-19, 16:41-49), and/or

drillable “guides and other internals” (e.g., 8:62-9:17, 16:41-49).

“to reopen” relates to, without limitation,

a. to allow flow or production (e.g., 1:56-63, 2:7-10, 10:20-29),

b. to leave full openings in well (e.g., 8:21-30),

c. so that entire casing space available (e.g., 10:11-19), or

d. to restore well to full drift diameter (e.g., 16:43-44).



**UNITED STATES DEPARTMENT OF COMMERCE**  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/861,157	05/22/97	GONDOUN	M HAL 16-17267
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EXAMINER

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ART UNIT

PAPER NUMBER

3625

DATE MAILED:

04/27/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.  
**08/861,457**

Applicant(s)  
**Gondouin**

Examiner  
**Hoang C. Dang**

Group Art Unit  
**3625**



☒ Responsive to communication(s) filed on Dec 24, 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-118 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☒ Claim(s) 1-7 is/are allowed.

☒ Claim(s) 8-55, 57-60, 63-69, 72-75, 77-80, 82, 85, 90, 92-95, 97, 103-110, 112 are rejected.

☒ Claim(s) 56, 61, 62, 70, 76, 81, 83, 84, 86-89, 91, 96, 98-102, 111, 113, and 116 are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Art Unit: 3625

### DETAILED ACTION

1. The preliminary amendment filed on December 24, 1997 is improper and has not been entered because it amends the filing date of the original application Serial No. 07/814,585 which is now the U.S. Patent No. 5,462,120. A request for changing the filing date of an application would be by way of a petition under 37 CFR 1.182, accompanied by the petition fee set forth in § 1.17(h) in the patented file, not by an amendment or a reissue. Applicant refers to MPEP § 1402 to support applicant's contention that correction of the filing date is a ground for reissue under 35 U.S.C. § 251. However, the filing date of January 4, 1993 of the parent application Serial No. 07/814,585 is not incorrect. In any event, any review of a filing date can only be made by way of petition as stated above.

### *Claim Rejections - 35 USC § 112, first paragraph*

2. Claims 13, 14, 15, 17, 19, 20, 23, 28-39, 49-52, 56, 77, 78, 117 and 118 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As for claims 13, 15 and 17, the steps "providing said diverter with a removable plug" and "removing said plug during reopening of the primary wellbore" in claim 13 have no support in the



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originally filed specification and drawings and are as new matter. There is <sup>No</sup> no removable plug in the diverter is shown or disclosed in the original disclosure.

As for claim 14, the step of “milling said section and said diverter to effect their removal” in claim 14 has no support in the originally filed specification and drawings and is considered new matter. Applicant’s whipstock (i.e., “diverter”) is pulled out, not milled out (see column 8, lines 24-25).

As for claim 19, the step of “said sealing step comprises the delivery of cementitious slurry between (1) said liner and (2) said primary borehole” has no support in the originally filed specification and drawings and is considered new matter. Applicant’s cementitious slurry is between the liner and the branch borehole.

As for claim 20, the step of “retaining said liner in position within said primary borehole using a packer” has no support in the originally filed specification and drawings and is considered as new matter. Applicant’s “cup-type packers” are conventionally utilized to prevent fluid flow in one direction and allowing same in the opposite direction. These cup-type packers are not utilized to retain a liner (the word “retain” is defined by the American Heritage Dictionary as “to keep or hold in a particular place, condition, or position”).

As for claim 23, the step “said diverter includes a bore therethrough” has no support in the originally filed specification and drawings and is considered new matter. It is noted that the limitations of the intervening claims 9 and 12 (e.g., liner) prevent the tubular guides, cages or fixed guide from being properly considered as the “diverter”.

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As for claims 28-40, the recitation of “at least a section of said first portion of said tubular member including an opening therethrough, such that a region in the primary borehole above the tubular member communicates with a region in the primary borehole below the tubular member” in claim 28 has no support in the originally filed specification and drawings and is considered as new matter. There cannot be found in applicant’s originally filed specification or drawings an opening extending through a section of the tubular member (or liner) that is located in the primary borehole and that allows the communication between a region in the primary borehole above the tubular member and a region in the primary borehole below the tubular member.

As further for claim 30, the recitation “said opening is provided by removing said section of said first portion of said liner to reopen said blocked primary borehole” has no support in the originally filed specification and drawings and is considered as new matter. This “opening” is specifically defined in base and intervening claims 28-29 and cannot be the bore of the casing:

As for claims 32 and 34, the limitation regarding the “removable plug” in the diverter have no support in the originally filed specification and drawings and is considered as new matter. There is no removable plug in the diverter is shown or disclosed in the original disclosure.

As for claim 35, the recitation “a bore formed axially through said diverter” clearly has no support in the original disclosure and is new matter.

As for claim 36, the limitation “cement between (1) said liner and (2) said primary wellbore” has no support in the originally filed specification and drawings and is considered new matter. Applicant’s cementitious slurry is between the liner and the branch borehole.

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As for claim 38, the recitation “the diverter closes the primary borehole to support sealing material and is at least in part removable to open the primary borehole” has no support in the originally filed specification and drawings and is considered new matter. Applicant’s cementitious slurry is between the liner and the branch borehole. This limitation cannot be found in column 7, lines 51-52 as pointed out by applicant.

As for claim 49-52 and 56, the recitations “said secondary production pipe is carried downhole by said tubular member” in claim 49 and “a housing having a premachined window and which housing envelops the tube during run in” in claim 56 have no support in the original disclosure and is considered as new matter. Applicant refers to Figures 4 and 10 for support for these limitations. However, according to the original disclosure, what is shown in figures 4 and 10 is a telescopic stub which includes an outer fixed guiding cage and an inner mobile guide, not a production pipe. The outer fixed guiding cage is later drilled out and the extended inner mobile guide later functions as a guide for the drill bit that drills the lateral borehole and for the liner (production pipe or tube) assembly that is run in from the surface (see column 9, lines 13-27).

With further respect to claims 50-52, these claims all depend on claim 49. Applicant refers to the embodiment of figures 4 and 10 to provide support for the limitation recited in claim 49. However, the embodiments of Figures 4 and 10 do not include the “flange orientating means” that include mating key and groove as recited in claims 50-52. The “flange orientating means” or “groove and mating key” are associated with the embodiment of Figure 3a, NOT figure 4 or 10.

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It is noted that applicant cannot pick or combine parts or components that were disclosed and shown as being from different embodiments to provide support for applicant's copied claims. Because of numerous new claims involved and a lengthy specification including several different embodiments, applicant is requested to check all of the claims for the same error.

Again, the "tubing connector" recited in dependent claims 77 and 78 were not disclosed or shown as being associated with the embodiment claimed in base claim 58 which includes the step of "removing at least a portion of the first tubular member at the intersection to provide a passageway through the second tubular member at the intersection to permit fluid flow and tool passage through the intersection". The limitations of claims 77-78 have no support in the original disclosure and are new matter.

As for claim 117, the recitation of "cutting at least a portion of the whipstock to reopen the tubular well casing through the intersection for fluid flow and tool access" has no support in the originally filed specification and drawings and is considered new matter. Applicant's whipstock is pulled out, not cut (see column 8, lines 24-25). It is the supporting whipstock packer whose portion is cut.

As for claim 118, the recitation "at least one of opening present in the wall of at least one of the tubular members and additionally comprising the step of flowing cement through the opening and into the intersection to seal the intersection" has no antecedent basis in the originally filed disclosure and is considered as new matter. It is noted that the opening recited in claim 18 is

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different from the opening recited in part (b) of base claim 105 and is not disclosed or shown in the original disclosure.

***Claim Rejections - 35 USC § 112, second paragraph***

3. Claims 16, 19, 25, 26, 49-52, 56, 77, 78 and 84 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 is a duplicate of claim 15.

The following expressions have no proper antecedent basis: "said sealing step" (claim 19, line 2); "said liner" (claim 25, line 3 and claim 26, line 2)

As for claims 49-52 and 56, the recitations "said secondary production pipe is carried downhole by said tubular member" in claim 49 and "a housing having a premachined window and which housing envelops the tube during run in" in claim 56 are inaccurate and misleading for the same reasons set forth above in the rejection of these claims under 35 U.S.C § 112, first paragraph.

As for claims 77 and 78, they are rejected as being inaccurate and misleading for the same reasons set forth above in the rejection of these claims under 35 U.S.C § 112, first paragraph.

As for claim 84, the term "the tubing member" has no antecedent basis.

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***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

5. Claims 8-39, 40, 41, 44/40, 44/41, 45, 46, 47, 48 (see Figure 9C), 53, 54, 57, 58, 59, 60, 63, 64, 65, 66, 67, 68, 72, 73, 74, 77, 78, 79 (see figures 2A-2D and column 7, lines 57-65), 80, 82/79, 82/80, 85, 90, 92 (see Fig. 16C or 4B or 2D), 93, 94 (Fig. 16C), 95, 97, 103 (see Fig. 2D and column 7, lines 57-65), 104, 105, 106, 107, 108 (see Fig. 2D or 7B), 109, 112, 114, 115, 117 and 118 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by McNair (US 5,520,252).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 42, 43, 55, 68 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over McNair '252 in view of Cunningham et al (US 5,044,432) or Hynes (US 5,193,616).

McNair '252 discloses the invention as claimed except the flange does not include an elastomeric or rubber sealing element. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the flange of McNair '252 with an elastomeric or rubber sealing element as claimed because it is well known in the art to an elastomeric sealing element as a secondary seal for a metal-to-metal seal as evidenced by Cunningham et al '432 (see column 3, lines 57-65) or Hynes '611 (see column 5, lines 32-34).

9. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over McNair '252 in view of Karnes (US 3,826,310) or Applicant's admitted prior art on page 6, lines 7-9.

McNair '252 discloses the invention as claimed except for the use of Furan or heat-hardened resin/cement slurries as seal. However, it would have been a matter of choice and obvious to use of Furan or heat-hardened resin/cement slurries as seal in McNair '252 because the

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As for claims 10 and 126, see “perforated openings” 9 in the casing. It is also noted that the claimed steps are not necessary to be in sequence as recited.

As for claim 12, see “deflectors” or “deflecting tools” recited in these translations.

As for claim 14, since the deflecting tool that is used to drill the lateral borehole 2 and deflect the liner 3 in to the lateral borehole 2 cannot be retrieved because it is blocked by the upper end of the liner 3, the deflecting tool of Russian ‘611 is inherently drilled out when the main hole 1 is drilled further after the liner 3 has been cemented.

As for claims 21 and 37, the “connector” does not distinguish from the casing 8 or any section thereof of the Russian reference.

As for the remaining claims, the recited structure or steps read exactly on the Russian reference’s.

9. Claims 175 and 210 (assuming that these claims do not require the presence of the lateral borehole and its alignment with the premachined window when the housing is installed) are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Huffman (US 702,006) (see the drawing and page 1, lines 80-86).

Huffman ‘006 discloses a method for sealing the junction between a branch wellbore and a parent wellbore as claimed, comprising: installing a housing (D) having a premachined window (K) such that the premachined window is aligned with the branch borehole (which is formed at a later stage); running through the premachined window a pipe (H) having a flange (I) at an uphole end thereof, said flange being of larger dimension



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than said premachined window (K); and urging said flange (I) against a periphery of the premachined window to seal said flange with said periphery of said premachined window (K) (see page 1, lines 84-86).

10. Claims 175-177 and 210 (assuming that these claims do not require the presence of the lateral borehole and its alignment with the premachined window when the housing is installed) are rejected under 35 U.S.C. 102(b) as being clearly anticipated by D' Audiffret et al (US 2,740,476).

D' Audiffret et al '476 disclose a method for sealing the junction between a branch wellbore and a parent wellbore as claimed, comprising: installing a housing (10) having a premachined window (24) such that the premachined window (24) is aligned with the branch borehole (which is formed at a later stage when screen pipe 12 is installed); running through the premachined window (24) a pipe (12) having a flange (28) at an uphole end thereof, said flange (28) being of larger dimension than said premachined window (24); and urging said flange (28) against a periphery of the premachined window (24) to seal said flange (28) with said periphery of said premachined window (24).

As for claims 176-177, see elastomeric gasket 32.

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*Claim Rejections - 35 USC § 103*

11. Claims 13, 15, 16, 18, 23, 24, 32, 33, 35, 38, 208, 209 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Russian document No. 787,611 in view of the German patent No. 3,832,715 to Kerekes.

Russian '611 discloses the invention as claimed except that Russian '611 suggests the use of a conventional diverter which is not disclosed as removable whereas the claims call for a removable diverter. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a removable diverter as claimed since Kerekes '715 teaches using a removable diverter because it offers the possibility of deflecting from a vertical wellbore a number of productive bores into the same oil-bearing stratum or into superimposed strata thereby improving the production of an oil field (see page 2, lines 3-20 of the English translation).

As for claims 23 and 35, see "bore" 22 which extends through the diverter 20 in Figure 3 of Kerekes '715.

As for claims 38, 208 and 209, since a portion of the upper end of liner 2 extends into the primary wellbore during the cementing operation thereof, the whipstock/packer (6,20) shown in Figure 3 of Kerekes '715 inherently catch some cement slurry during the cementing operation as recited.

12. Claims 176 and 177 (assuming that these claims do not require the presence of the lateral wellbore when the housing is installed) are rejected under 35 U.S.C. 103(a) as

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being unpatentable over Huffman (US 702,006) in view of D'Audiffret et al (US 2,740,476).

Huffman '006 discloses the invention as claimed except for the "seal material" or "elastomeric seal material". However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the flange I of Huffman '006 with an elastomeric seal as claimed because it is well known in the art to provide such a flange with an elastomeric gasket to prevent leakage as evidenced by D'Audiffret et al '476 (see column 3, lines 28-33).

13. Claims 1-16, 18, 19, 21-29, 31-33, 35-39, 120, 123, 124, 126-128, 175-177 and 198-212 of this application has been copied by the applicant from U. S. Patent Nos. 5,520,252, 5,322,127 and 5,787,987. These claims are not patentable to the applicant because of the various reasons set forth above.

An interference cannot be initiated since a prerequisite for interference under 37 CFR 1.606 is that the claim be patentable to the applicant subject to a judgement in the interference.

### *Specification*

14. It is noted that the amendment to the filing date on the title page was improper and has not been entered. The amendment should be made as follows:

"Replace the filing date in the INID code [22] with the following:

Art Unit: 3672

[Filed: Jan. 4, 1993] Filed: Dec. 30, 1991"

***Drawings***

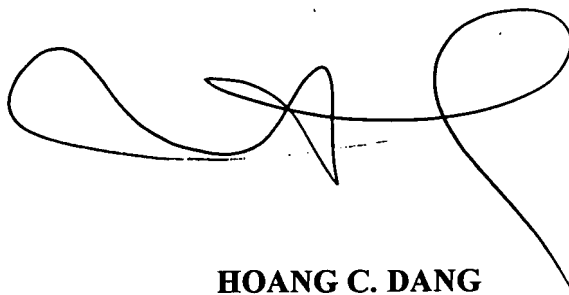
15. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on March 7, 2000 have been approved.

***Conclusion***

16. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Hoang Dang, whose telephone number is (703) 308-2149. The examiner can normally be reached on Monday-Friday from 9:15 AM to 5:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell, can be reached on (703) 308-2151. The fax phone number for this Group is (703) 305-3597.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-2168.



**HOANG C. DANG  
PRIMARY EXAMINER  
ART UNIT 3672**

H. Dang/hcd  
03/10/2000  
82861457.NON



**John F. Terapane, Jr.  
Director  
Group 3600**



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/861,457      05/22/97      GONDOUN      M      HAL16-17267

JOHN F BOOTH  
CRUTSINGER & BOOTH  
1601 ELM STREET  
SUITE 1950  
DALLAS TX 75201-4744

PM92/1207

EXAMINER

DANG, H

ART UNIT

PAPER NUMBER

3672

DATE MAILED:

12/07/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

Art Unit: 3672

The amendment filed October 18, 2000 does not comply with 37 CFR 1.121(b), which set forth the manner of making amendments in reissue applications. Specifically, the amendment fails to comply with 37 CFR 1.121(b)(2)(ii) in that the amendment does not set forth the status (i.e., pending or cancelled) of all patent claims and of all added claims as of the date of the submission and it does not comply with 37 CFR 1.121(b)(2)(iii) in that it is not accompanied by an explanation of the support in the disclosure of the patent for the amendment with any additional comments on pages separate from the pages containing the amendment. A supplemental paper correctly amending the reissue application is required.

A shortened statutory period for reply to this letter is set to expire ONE (1) MONTH or THIRTY (30) DAYS, whichever is longer, from the mailing date of this letter.

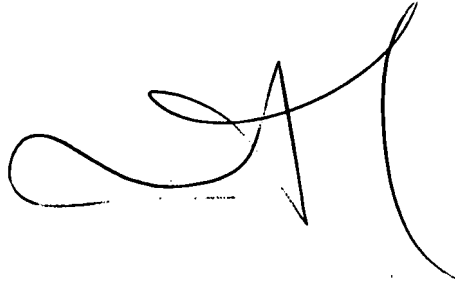
To expedite the prosecution of this reissue application, it is suggested that applicant also submits, in response to this letter, an amendment to claim 223 to correct its dependency and a proposed amendment to Figure 4 of the drawings to corrects the discrepancies in Figure 4 regarding the location of the drillable collar (35) and gasket (37) to agree with the written disclosure, Figure 3a and Figure 10. An amendment to Figure 10 is also needed because it incorrectly shows the drillable collar 35 extends outwardly of the fixed tubular guide or cage 41. Applicant is reminded that no new matter should be entered. Applicant is notified that any subsequent amendment to the specification, claims and/or drawings must comply with 37 CFR 1.121(b)(1)-(3). See MPEP § 1453.

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Any inquiry concerning this communication or earlier communication from the examiner should be directed to Hoang Dang, whose telephone number is (703) 308-2149. The examiner can normally be reached on Monday-Friday from 9:15 AM to 5:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell, can be reached on (703) 308-2151. The fax phone number for this Group is (703) 305-3597.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-2168.

A handwritten signature in black ink, appearing to be 'H. Dang', with a stylized, flowing script.

**HOANG C. DANG  
PRIMARY EXAMINER  
ART UNIT 3672**

H. Dang/hcd  
12/05/2000  
83861457.LET

# Interview Summary

Application No.  
**08/861,457**

Applicant(s)  
**Gondouin**

Examiner  
**Hoang C. Dang**

Group Art Unit  
**3672**



All participants (applicant, applicant's representative, PTO personnel):

(1) Hoang C. Dang

(3) \_\_\_\_\_

(2) Kathleen A. Daley

(4) \_\_\_\_\_

Date of Interview Jun 4, 2001

Type: a) ☒ Telephonic      b) ☐ Video Conference  
c) ☐ Personal [copy is given to 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes      e) ☒ No. If yes, brief description:

Claim(s) discussed: None

Identification of prior art discussed:  
None

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Applicant was told that a supplemental declaration stating applicant's mailing address and applicant's belief that the patent is inoperative or invalid is needed. Applicant will prepare and fax such a supplemental declaration to the examiner.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i) ☒ It is not necessary for applicant to provide a separate record of the substance of the interview (if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

**HOANG C. DANG**  
**PRIMARY EXAMINER**  
**ART UNIT 3672**



## Interview Summary

Application No.  
08/861,457

Applicant(s)  
Gondouin

Examiner  
Hoang C. Dang

Group Art Unit  
3672



All participants (applicant, applicant's representative, PTO personnel):

(1) Hoang C. Dang

(3) \_\_\_\_\_

(2) Kathleen A. Daley

(4) \_\_\_\_\_

Date of Interview Jun 4, 2001

Type: a) ☒ Telephonic      b) ☐ Video Conference  
c) ☐ Personal [copy is given to 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes      e) ☒ No. If yes, brief description:

Claim(s) discussed: None

Identification of prior art discussed:  
None

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Applicant was told that a supplemental declaration stating applicant's mailing address and applicant's belief that the patent is inoperative or invalid is needed. Applicant will prepare and fax such a supplemental declaration to the examiner.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i) ☒ It is not necessary for applicant to provide a separate record of the substance of the interview (if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

HOANG C. DANG  
PRIMARY EXAMINER  
ART UNIT 3672

HAL16-17267



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. Patent No. 5,462,120

Group Art Unit: 3625

Inventor: Michel Gondouin

Examiner: Dang, H.

Application Serial No. 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS AND ASSEMBLY PROCEDURES FOR THE DRILLING,  
TIE-IN AND COMPLETION OF VERTICAL CASED OIL WELLS CONNECTED TO LINER-  
EQUIPPED MULTIPLE DRAINHOLES

AMENDMENT A

Honorable Commissioner  
of Patents and Trademarks  
Washington, D.C. 20231

Sir:

In response to the Office Action mailed April 27, 1998, a petition for extension of time being made  
herewith, please amend the application as follows:

In the Claims:

Please cancel Claims 17, 20, 34, and 118 without prejudice.

91 13. (AMENDED) The method of Claim 12, including the step of: providing said diverter with a  
removable portion [plug]; and removing said portion [plug] during reopening of the primary borehole.

92 15. (AMENDED) The method of Claim 13 wherein: said removable portion of said diverter comprises  
a whipstock [packer assembly].

AMENDMENT A - Page 1 -- October 21, 1998

10/26/1998 SS/LEKU 00000026 08/861457  
02 FC:103  
03 FC:102

#8

#8A  
2/9/98  
12/23/98

92 16. (AMENDED) The method of Claim 12 [13] wherein:  
said diverter comprises a ~~whipstock~~ packer assembly.

93 19. (AMENDED) The method of Claim 26 [9] wherein:  
said sealing step comprises the delivery of cementitious [cementitious] slurry between (1) said liner and  
(2) said primary borehole.

94 25. (AMENDED) The method of Claim 9 [8] wherein said primary borehole includes casing having an  
opening therethrough at the intersection of said primary and branch boreholes, said first portion of said liner  
residing in said casing and said second portion of said liner extending through said opening and into said branch  
borehole.

26. (AMENDED) The method of Claim 9 [8] including the step of:  
sealing said liner at said intersection between said primary and branch boreholes.

95 28. (AMENDED) A well having a primary borehole intersecting with a branch borehole comprising:  
a tubular member positioned at the intersection of said primary and branch boreholes wherein a first  
portion of said tubular member resides in said primary borehole and wherein a second portion of said tubular  
member resides in said branch borehole, at least a section of said first portion of said tubular member being  
removed [including an opening therethrough], such that a region in the primary borehole above the tubular  
member communicates with a region in the primary borehole below the tubular member.

96 30. (AMENDED) The well of Claim 134 [29] wherein said liner initially blocks said primary borehole  
and wherein:  
said opening is provided by removing said section of said first portion of said liner to reopen said blocked  
primary borehole.

97 32. (AMENDED) The well of Claim 31 including: a removable portion [plug] in said diverter.

40. (AMENDED) A lateral seal and control system comprising:

- 98
- a) a first borehole having a window therein;
  - b) a secondary borehole extending from said first borehole, coextensive with said window; and
  - c) a secondary borehole tubular member [production pipe] having a flange about the periphery of an uphole end of said tubular member [pipe], said flange being sealably engagable with a periphery of said window.

41. (AMENDED) The lateral seal and control system as claimed in Claim 40, additionally comprising: cementitious material around the junction between said first borehole and said secondary borehole tubular member [production pipe].

99

44. (AMENDED) The lateral seal and control system as claimed in any one of Claims 40-43, wherein said flange on said secondary borehole tubular member [production pipe] is disposed such that when said flange sealably engages the periphery of said window said secondary borehole tubular member [production pipe] follows the direction of said secondary borehole.

46. (AMENDED) The lateral seal and control system as claimed in Claim 40, wherein a primary borehole tubular member is positioned in said first borehole and the window is formed in the primary borehole tubular member.

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47. (AMENDED) The lateral seal and control system as claimed in Claim 46, wherein said primary borehole tubular member is a casing section.

48. (AMENDED) The lateral seal and control system as claimed in Claim 46, wherein said primary borehole tubular member is a casing patch positioned in a preexisting casing of said first borehole.

49. (AMENDED) The lateral seal and control system as claimed in Claim 46, wherein said secondary borehole tubular member [production pipe] is carried downhole by said primary borehole tubular member.

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50. (AMENDED) A lateral seal and control system as claimed in Claim 49, further comprising: guide means positioned in said primary tubular member for guiding said secondary borehole tubular member [production pipe] from said tubular member and through said window.

51. (AMENDED) A lateral seal and control system as claimed in Claim 50, further comprising means on said guide means [tubular member] and said flange to orientate said flange in said primary borehole tubular member.

211

56. (AMENDED) A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 53, wherein said method further includes providing a housing having a premachined window [and which housing envelops the tube during run in and running the housing to a predetermined location prior to the urging step].

912

58. (AMENDED) In a method of tying-in a first tubular [tublar] member to a second tubular member in a wellbore extending into a subterranean formation, the method comprising the steps of:

- (a) positioning the second tubular member in the wellbore;
- (b) forming an opening in the wall of the second tubular member;
- (c) forming a subsurface cavity external to the second tubular member in the subterranean formation;
- (d) positioning the first tubular member to extend from the interior of the second tubular member, through the opening, and into the subsurface cavity;
- (e) inserting settable material into the subsurface cavity at the intersection between the first and second tubular [tublar] members and allowing the settable material to set up thereby sealing the intersection; and
- (f) thereafter removing at least a portion of the first tubular member at the intersection to provide a passageway through the second tubular [tublar] member at the intersection to permit fluid flow and tool passage through the intersection.

a13 66. (AMENDED) The method according to either one of Claims 64 or 65, wherein the first tubular member includes a flanged element larger than the window, the method further comprising the step of positioning the flanged element in contact with the inner surfaces of the second tubular [tublar] member at the edge of the window.

214 79. (AMENDED) A method for connecting a lateral wellbore to a primary wellbore, the method comprising the steps of:  
under-reaming a portion of the primary wellbore;  
running a tubular member into the under-reamed portion of the primary wellbore, the tubular member having at least one liner stub, the liner stub having an upper end and a lower end;  
extending the lower end of the liner stub into the under-reamed portion of the primary wellbore;  
drilling a lateral wellbore;  
running-in a lateral liner through the liner stub and into the lateral wellbore; and  
hanging the lateral liner from the lower end of the liner stub.

a15 84. (AMENDED) The method according to any one of Claims 79-81, further comprising the step of:  
drilling a window in the [tubing] tubular member

a16  
104. (AMENDED) In a method of drilling and completing a branched cased well for oil recovery wherein the subsurface intersection between tubular members in a well are permanently sealed, the [sealed wherein the] tubular members are open to the passage of fluid and well tools through the intersection, and the well has a tubular well casing with an opening in the wall thereof communicating with a subsurface cavity formed external to the casing,

the method comprising the steps of:

- (a) positioning a tubular member to intersect with the well casing, the tubular member having a sufficient length to extend from the interior of the casing, through the casing wall opening and externally from the casing into the cavity;
- (b) inserting settable material into the subsurface cavity at the intersection between the tubular member and the casing and allowing the settable material to set up thereby sealing the intersection; and
- (c) thereafter removing at least a portion of the tubular member at the intersection to provide a passageway through the casing at the intersection for fluid flow and tool passage through the intersection.

a17  
117. (AMENDED) The method of Claim 104 additionally comprising installing a whipstock in the tubular casing prior to installing the tubular member [and thereafter cutting at least a portion of the whipstock to reopen the tubular well casing through the intersection for fluid flow and tool access].

Please add the following new claims:

a18  
119. The method of Claim 13, wherein the step of removing said removable portion of said diverter to reopen the primary borehole further comprises: milling said removable portion of said diverter.

120. The method of Claim 18, further comprising the step of positioning a diverter at the entrance to said branch borehole; and diverting said second portion of said tubular member into said branch borehole using said diverter.

121. The method of Claim 20, further comprising the step of: removing at least a portion of said diverter to reopen the primary borehole.

122. The method of Claim 121, wherein the step of removing at least a portion of said diverter comprises: milling said diverter.

123. The method of Claim 8, including the step of sealing said tubular member at said intersection between said primary and branch boreholes.

124. The method of Claim 123, wherein said sealing step comprises the delivery of cementitious slurry between (1) said tubular member and (2) said primary borehole.

125. The well of Claim 28, wherein said primary borehole includes casing.

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Amended  
126. The well of Claim 125, further comprising: an opening in said casing at the site of the intersection between said primary borehole and said branch borehole, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole.

127. The well of Claim 126, wherein said first portion of said tubular member resides in said casing and said second portion of said tubular member extends through said opening and into said branch borehole.

128. The well of Claim 127, wherein said tubular member is a liner.

129. The well of Claim 28, wherein the primary borehole is reopened when said section of said first portion of said tubular member is removed.

130. The well of Claim 129, wherein the removed section of said first portion of said liner comprises a drillable collar.

131. The well of Claim 130, wherein the primary borehole is reopened when the drillable collar is removed.

132. The well of Claim 129, wherein said tubular member is a liner.



133. The well of Claim 28, wherein the removed section of said first portion of said tubular member defines an opening therethrough.

134. The well of Claim 133, wherein said tubular member is a liner.

135. The lateral seal and control system as claimed in Claim 40, wherein said secondary borehole tubular member is for fluid flow production through the tubular member.

136. The lateral seal and control system as claimed in Claim 40, wherein said secondary borehole tubular member is a liner.

137. The lateral seal and control system as claimed in Claim 46, wherein said primary borehole tubular member is a casing.

138. The lateral seal and control system as claim in Claim 49, wherein said secondary borehole tubular member is a telescopic liner stub.

139. The method for sealing the juncture between a branch wellbore and a parent wellbore according to any one of Claims 53, 54, 55, 56, or 57, further comprising the step of casing said parent wellbore.

140. The method for sealing the juncture between a branch wellbore and a parent wellbore according to Claim 53, wherein the flange is a drillable material.

141. The method of Claim 117 additionally comprising the step of: removing the whipstock to reopen the tubular well casing through the intersection for fluid flow and tool access after installing the tubular member.

142. A method for forming an intersecting junction between a first tubular member and a second tubular member at a remote downhole location for well fluid production through the intersecting junction, the method comprising the steps of:

- (a) running the first tubular member to the remote downhole location, the first tubular member carrying the second tubular member therein; and
- (b) extending at least a portion of the second tubular member through a window in the first tubular member at the remote downhole location.

143. The method of Claim 142, wherein one end of the second tubular member has an end formed to conform with the periphery of the window.

144. The method of Claim 142, wherein the second tubular member further comprises: a shoulder portion at one end thereof for engaging a periphery of the window, whereby the shoulder portion stops further extension of the second tubular member through the window.

145. The method of Claim 144, wherein the shoulder portion further comprises: a circumferential flange for engaging the entire periphery of the window when the second tubular member is extended through the window in the first tubular member.

146. The method of Claim 145, further comprising the step of: orienting the flanged portion of the second tubular member relative to the window in the first tubular member.

147. The method of Claim 145, wherein the flanged portion further comprises: an elastomeric sealing element.

148. The method of Claim 145, wherein the flanged portion further comprises: resilient sealing material thereon.

149. The method of Claim 145, further comprising the step of removing the flanged portion of the second tubular member remaining in the first tubular member after extending the second tubular member through the window.

150. The method of Claim 142, wherein after extending at least a portion of the second tubular member through the window, at least a portion of the second tubular member remains in the first tubular member.

151. The method of Claim 150, further comprising the step of removing at least a section of the portion of the second tubular member remaining in the first tubular member.

152. The method of Claim 150, wherein the portion of the second tubular member remaining in the first tubular member is a flanged portion at one end of the second tubular member for engaging the periphery of the window.

153. The method of Claim 142, wherein the first tubular member is a casing joint.

154. The method of Claim 142, wherein the first tubular member is a casing patch having an outside diameter less than the drift diameter of preexisting casing in a wellbore.

155. The method of Claim 142, wherein the window in the first tubular member is pre-formed before running the first tubular member to the remote location.

156. The method of Claim 155, wherein the first tubular member further comprises a drillable plug closing the window.

157. The method of Claim 142, further comprising the step of: forming the window in the first tubular member at the remote downhole location after running the first tubular member to the remote location.

158. The method of Claim 142, wherein the step of extending at least a portion of the second tubular member through the window in the first tubular member at the remote downhole location comprises the steps of: positioning a diverter adjacent the window in the first tubular member; and diverting at least a portion of the second tubular member through the window in the first tubular member.

159. The method of Claim 158, wherein the diverter comprises a tubular guide for supporting and directing the second tubular member as it is extended through the window in the first tubular member.

160. The method of Claim 158, further comprising the step of: after diverting at least a portion of the second tubular member through the window in the first tubular member, removing the diverter to reopen the first tubular member to fluid flow and tool access through the intersecting junction between the first tubular member and the second tubular member.

161. The method of Claim 160, wherein the step of removing the diverter comprises: drilling out the diverter.

162. The method of Claim 142, wherein the second tubular member is a liner.

163. The method of Claim 162, wherein the liner is a telescopic liner stub.

164. The method of Claim 163, wherein the step of extending the telescopic liner stub comprises hydraulically extending the telescopic liner stub.

165. The method of Claim 163, wherein the telescopic liner stub is a mobile liner stub slidably mounted and supported during run-in and guided during its extension by a tubular guide made of drillable material and attached to the first tubing member by drillable fasteners.

166. The method of Claim 163, wherein the mobile liner stub is terminated at one end thereof by a drillable collar.

~~167. The method of Claim 166, wherein the window is elliptical and the drillable collar has an elliptical shape to provide mating contact with the periphery of the elliptical window.~~ *u*

~~168. The method of Claim 166, wherein the mobile liner stub further comprises: a sealing material at the drillable collar.~~ *u*

~~169. The method of Claim 142, further comprising the step of: forming a cavity at the remote downhole location.~~ *da*

~~170. The method of Claim 169, wherein the step of forming a cavity at the remote downhole location comprises: underreaming to enlarge a wellbore to the remote downhole location.~~ *u*

~~171. The method of Claim 170, wherein the step of forming a cavity at the remote downhole location comprises: milling out a portion of a preexisting casing of a wellbore to the remote downhole location, and underreaming where the preexisting casing has been milled out.~~ *u*

~~172. The method of Claim 169, wherein the step of forming a cavity at the remote downhole location comprises: drilling a branch wellbore through the window in the first tubular member.~~ *u*

~~173. The method of claim 142, further comprising the step of cementing the exterior of the intersecting junction between the first tubular member and the second tubular member after extending the second tubular member through the window.~~ *u*

~~174. A well having an intersecting junction between a first tubular and a second tubular formed in accordance with the method of any one of Claims 142-173.~~ *u*

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Cont.

175. A method for sealing the junction between a branch wellbore and a parent wellbore comprising:  
(a) installing a housing having a premachined window therein such that said premachined window is aligned with said branch borehole;

(b) running through said premachined window, a pipe having a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; and

(c) urging said flange against a periphery of said premachined window to seal said flange with said periphery of said premachined window.

176. A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 175, wherein said flange includes a seal material.

177. A method for sealing the junction between a branch wellbore and a parent wellbore as claimed in Claim 176, wherein said seal material is elastomeric material.

178. A method for sealing the junction between a branch wellbore and a parent wellbore, wherein the branch wellbore extends from an opening in the parent wellbore, the method comprising:

(a) running through said opening in said parent wellbore, a tubular member having a flange at an uphole end thereof, said flange being of larger dimension than said opening; and

(b) urging said flange against a periphery of said opening to seal said flange with said periphery of said opening.

179. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 178, wherein the step of urging includes applying pressure to the flange of said tubular member.

180. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 179, wherein the step of applying pressure includes closing said tubular member at a point below said flange and delivering a fluid to a bore of said tubular member to seal said flange with said periphery of said opening.

181. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 178, wherein the step of urging includes closing said tubular member at a point below said flange and applying pressure to the tubular member at the downhole end to seal said flange with said periphery of said opening.

182. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 181, wherein the step of closing said tubular member is performed by a packer located in the tubular member at a point below the flange.

183. A method for sealing the junction between a branch wellbore and a parent wellbore, wherein the branch wellbore extends from an opening in the parent wellbore, the method comprising:

(a) running through said opening in said parent wellbore and into said branch wellbore a tubular member having a flange located along its length, said flange being of larger dimension than said opening;

(b) delivering a sealing material through a bore in said tubular member to the annular space between the tubular member and the branch wellbore; and

(c) urging said flange against a periphery of said opening to seal said flange with said periphery of said opening.

184. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 183, further comprising the step of removing any portion of the tubular member remaining in the parent wellbore.

185. A method for sealing the junction between a branch wellbore and a parent wellbore, wherein the branch wellbore extends from an opening in the parent wellbore, the method comprising:

- (a) running through said opening in said parent wellbore and into said branch wellbore a tubular member having a flange located along its length, said flange being of larger dimension than said opening;
- (b) inserting a sealing material delivery pipe through a bore in the tubular member;
- (c) closing the annular space between said delivery pipe and said tubular member; and
- (d) delivering a sealing material through said delivery pipe to the annular space between the tubular member and the branch wellbore.

186. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 185, further comprising the step of urging said flange against a periphery of said opening to seal said flange with said periphery of said opening.

187. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 186, wherein the step of urging comprises closing said tubular member at a point below said flange and applying pressure to the tubular member at the closed point to seal said flange with said periphery of said opening.

188. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 186, wherein the step of urging comprises applying pressure to the flange of said tubular member.

189. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 188, wherein the step of applying pressure comprises closing said tubular member at a point below said flange and delivering a fluid to a bore of said tubular member to seal said flange with said periphery of said opening.

190. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 189, wherein the step of closing the annular space is performed by a packer located in the tubular member at a point below said flange.



✓ 191. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 186, wherein the step of closing the annular space is performed by a packer located in the tubular member at a point below said flange. ✓

✓ 192. The method for sealing the junction between a branch wellbore and a parent wellbore according to Claim 191, wherein the step of closing said tubular member is performed by said packer. ✓

✓ 193. A method of sealing a tubular member at the intersection of a first and second wellbore, wherein the second wellbore extends from an opening in the first wellbore, the method comprising:

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Cmt.  
inserting a tubular member having a bore therethrough and a flange along its length into the second wellbore through the opening in the first wellbore such that the flange sits on the wall of the first wellbore surrounding the opening and a portion of the liner extends into the second wellbore;

installing a sealing material delivering shoe into the portion of the tubular member extending into the second wellbore;

delivering cement from the shoe upward to the annular space between the tubular member and the second wellbore; and

applying pressure to the flange to seal the flange to the wall of the first wellbore surrounding the opening.

✓ 194. The method of sealing a tubular member at the intersection of a first and second wellbore according to Claim 193, further comprising the step of inserting a casing into the first wellbore, wherein the casing has a window corresponding to the opening for the second wellbore and the flange of the tubular member sits on the surface of the casing surrounding the window. ✓

✓ 195. The method of sealing a tubular member at the intersection of a first and second wellbore according to Claim 193, further comprising the step of removing at least a portion of the tubular member remaining in the first wellbore. ✓

196. A method of sealing a tubular member at the intersection of a first and second wellbore, wherein the second wellbore extends from an opening in the wall of the first wellbore, the method comprising the steps of:

inserting a liner having a bore therethrough and a flange located along its length into the second wellbore through the opening in the first wellbore such that the flange sits on the wall of the first wellbore surrounding the opening and the tubular member extends into the second wellbore;

inserting a sealing material delivery pipe through the bore in the tubular member;

closing the annular space between the pipe and the tubular member;

delivering sealing material through the pipe to the space between the liner and the second wellbore;

applying pressure to the flange to seal the flange to the wall of the first wellbore surrounding the opening;

removing the cement delivery pipe; and

removing any cement in the liner in the second wellbore to reopen the second wellbore.

197. The method of sealing a tubular member at the intersection of a first and second wellbore according to Claim 196, further comprising the step of removing at least a portion of the flange of the tubular member to reopen the first wellbore.

**REMARKS**

The Examiner's careful attention to this reissue application is appreciated. Reconsideration of the application is respectfully requested. To assist the Examiner in reconsideration of this reissue application, an Appendix is submitted herewith including a Claim Chart to explain and comment on the support in the disclosure of Applicant's original patent for all the pending claims in this reissue application, as amended by this Amendment A.

**Benefit of Original Filing Date**

Responsive to the Office Action mailed April 27, 1998, Applicant respectfully traverses the Examiner's position that he does not have the authority to enter an amendment correcting the filing date. Meanwhile, on June 29, 1998, Applicant filed a "Petition for Grant of Filing Date as of the Date of Original Deposit and Request for Oral Hearing." Applicant incorporates by reference herein for all purposes the Petition and all the attachments thereto. To date, Applicant is not aware of any decision on the Petition. In this response to the Office Action mailed April 27, 1998, Applicant assumes a favorable ruling on its Petition and that the effective filing date for this application will be corrected to December 30, 1991.

**Summary Status of Pending Claims**

Claims 1-16, 18, 19, 21-33, 35-51, 53-117, and 119-197 are pending in the application.

Claims 1-7 have been allowed in this reissue application, which are the original claims in the patent.

Claims 17, 20, 34, and 118 have been canceled without prejudice.

Claims 13, 15, 16, 19, 25, 26, 28, 30, 32, 40, 41, 44, 46-51, 56, 58, 66, 79, 84, 104, and 117 have been amended to clarify that which the Applicant regards as the invention and not to overcome any cited prior art. No additional search should be necessitated by these amendments to the claims.

Claims 119-141 are dependent on claims originally filed in this reissue application and are presented to further clarify that which the Applicant regards as the invention.

Method Claims 142-174 generally correspond to the subject matter of apparatus Claim 92 already pending in the application and other claims in the reissue application, but eliminate unnecessary limitations to further clarify and emphasize that which the Applicant regards as the invention.

Method Claims 175, 176, and 177 are copied from Claims 21, 22, and 23 of U.S. Patent No. 5,787,987 issued August 4, 1998 ("Forsyth '987").

New method Claims 178-197 are added to further clarify that which the Applicant regards as the invention.

All pending claims in this reissue application and an explanation of the support for the claims in the disclosure of Applicant's original patent is provided in the Claim Chart of the Appendix filed with this Amendment A.

Correlation of Claims of Reissue Application to Claims Copied From '252 Patent

To assist the Examiner, the following outline clarifies the correlation between pending Claims 8-16, 18, 19, 21-33, 35-39, and 119-134 in this reissue application and the claims of McNair '252:

Claim 8 substantially corresponds to Claim 1 of McNair '252, the difference being that the term "tubular member" has been substituted for the term "liner." Reissue Application Declaration at ¶ 16.

Claim 9 literally corresponds to Claim 1 of McNair '252.

Claims 10-12 literally correspond to Claims 2-4 of McNair '252, respectively.

Claim 13, as amended, partially corresponds to Claim 4 of McNair, having the limitation that the diverter is provided with a "removable portion."

Claim 14 literally corresponds to Claim 6 of McNair '252.

Claim 15, as amended and dependent from Claim 13 herein, substantially corresponds to Claim 8 of McNair, specifying that the "removable portion" of the diverter can comprise a whipstock.

Claim 16, as amended, literally corresponds to Claim 8 of McNair '252.

Claim 17 has been canceled.

Claim 18 literally corresponds to Claims 10 of McNair '252.

Claim 19, as amended, literally corresponds to Claim 11 of McNair '252.

Claim 20 has been canceled.

Claim 21 literally corresponds to Claim 13 of McNair '252.

Claim 22 substantially corresponds to Claim 14 of McNair '252, the difference being that the term "tubular member" has been substituted for the term "liner."

Claim 23 literally corresponds to Claim 15 of McNair '252.

Claim 24 literally corresponds to Claim 19 of McNair '252.

Claims 25-26 literally correspond to Claims 37-38 of McNair '252, respectively. These two claims in this reissue application are rearranged relative to the order in McNair '252 so that the dependent claims are grouped together with the claim or claims to which they refer. MPEP § 608.01(m).

Claim 27 literally corresponds to Claim 20 of McNair '252.

Claim 28, as amended, substantially corresponds to Claim 21 of McNair '252, the differences being that the term "tubular member" has been substituted for the term "liner" and that "at least a section of said first portion of said tubular member being removed" has been substituted for "including an opening therethrough." This subject matter of amended Claim 28 substantially tracks the subject matter of Claim 27 originally filed in the reissue application, which is directed to a well having a junction sealed in accordance with the method of Claim 9, the differences being that the term "tubular member" has been substituted for the term "liner." See Reissue Application Declaration at ¶ 16.

Claim 29, dependent on amended Claim 28, substantially corresponds to Claim 21 of McNair '252, the difference being that "at least a section of said first portion of said liner being removed" has been substituted for "including an opening therethrough."

Claim 30, as amended to depend from Claim 134, literally corresponds to Claim 22 of McNair '252.

Claims 31, 33, 35-39 substantially correspond to Claims 23, 26, 28, 29, 32, 36, and 40 of McNair '252, respectively, the differences being that the term "tubular member" has been substituted for the term "liner" and that "at least a section of said first portion of said tubular member being removed" has been substituted for "including an opening therethrough."

Claim 32, as amended, is dependent on Claim 31, partially corresponds to Claim 26 of '252 of McNair '252, the differences being the same as discussed above with respect to Claim 31 and having the limitation that the diverter is provided with a "removable portion."

Claim 34 has been canceled.

Claim 119, dependent from Claim 13 herein, clarifies that the step of removing said removable portion of said diverter can be accomplished by "milling said removable portion of said diverter."

Claims 120, dependent from Claim 8 herein, substantially corresponds to Claim 4 of McNair '252, the difference being that the term "tubular member" has been substituted for the term "liner." Reissue Application Declaration at ¶ 16.

Claim 121, dependent from Claim 120 herein, clarifies that according to certain embodiments of the invention, the method includes the step of removing the diverter.

Claim 122, dependent from Claim 121, further clarifies that the diverter can be removed by milling the diverter.

Claims 123 and 124, dependent from claim 8, substantially correspond to Claim 38 and 11 of McNair '252, respectively (correcting for the erroneous dependency in the issued McNair '252), the difference being that the term "tubular member" has been substituted for the term "liner."

Claim 125, dependent from Claim 8, clarifies that the well can include a casing.

Claim 126 and 127, dependent from Claim 125, substantially correspond to Claim 24 and 39 of McNair, respectively, the differences being that the term "tubular member" has been substituted for the term "liner" and that "at least a section of said first portion of said tubular member being removed" has been substituted for "including an opening therethrough."

Claim 128 substantially corresponds to Claim 39 of McNair the difference being that the term "tubular member" has been substituted for the term "liner."

Claim 129, dependent from amended Claim 28, substantially corresponds to Claim 21 of McNair '252, the differences being that the term "tubular member" has been substituted for the term "liner" and that "the primary borehole is reopened when said section o f said first portion of said tubular member is removed."

Claims 130-132, dependent from Claim 129, further clarify that which the applicant regards as the invention, for example, that the removed section can be a drillable collar.

Claim 133, dependent from Claim 28, substantially corresponds to Claim 21 of McNair '252, the difference being that the term "tubular member" has been substituted for the term "liner."

Claim 134, dependent from Claim 133, literally corresponds to the subject matter of Claim 21 of McNair '252.

#### Other Claims in Reissue Application

Claims 40-57 in this reissue application substantively correspond to the claims in U.K. Patent Application No. 2304764A published on March 26, 1997. The priority data on the U.K. Patent Application is identified as U.S. Application Serial No. 60/003,340 dated September 6, 1995, which was continued and prosecuted to U.S. Patent No. 5,787,987 issued August 4, 1998 ("Forsyth '987"). Reissue Application

Declaration at ¶ 17. (Note that the Reissue Application Declaration erroneously indicated the priority date "6/9/95" of the U.K. Patent Application to be "June 9, 1995," based on an error in using the U.S. date convention "M/D/Y" instead of the European date convention "D/M/Y.")

Claims 175, 176, and 177 are copied from Claims 21, 22, and 23 of Forsyth '987 issued August 4, 1998.

Claims 178-197 are added to further define that which the Applicant regards as the invention.

Response to the Rejection of Claims Under 35 U.S.C. § 112, First Paragraph

Pending Claims 13, 14, 19, 23, 28-33, 35-39, 49-51, 56, 77, 78, and 117 were rejected under 35 U.S.C. § 112, first paragraph, "as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." In response to the rejection:

Claims 13 and 15 have been amended to clarify that which the Applicant regards as the invention. More specifically, Claim 13 has been amended to change "removable plug" to "removable portion", deleting the unnecessary limitation regarding a removable plug in the diverter. Claim 15 dependent therefrom has been amended to clarify that the "removable portion" of the diverter can comprise a whipstock. As explained and discussed in detail in the Appendix hereto, these amendments to Claims 13 and 15 are fully supported by the disclosure of the original patent. No new matter has been added. Reconsideration of amended Claims 13 and 15 is respectfully requested. In relation to the clarification of the subject matter of Claim 13, new Claim 119 dependent from amended Claim 13 has been added to further clarify that which the Applicant regards as the invention. Support for the claims is explained in detail in Appendix A. No new matter has been added.

The rejection of Claim 14 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. The Appendix has been supplemented to show the support for "milling said section and said diverter to effect their removal." In the embodiment where the diverter comprises the tubular guides shown and described with respect to Figures 4 and 10 of the reissue application, this diverter is milled out. Reconsideration of amended Claim 14 is respectfully requested. In relation to the clarification of the general subject matter of Claim 14, new Claims 120-122 dependent from Claim 8 have also been added to further clarify that which the Applicant regards as the invention. Support for the claims is explained in detail in Appendix A. No new matter has been added.

The rejection of Claim 19 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. It is clear from the description and drawings in the application that a cementitious slurry is to be delivered between the liner

and the primary borehole, at least at the periphery of the opening into the primary borehole. See Figure 3b and Figure 10. Reconsideration of the rejection of Claim 19 is respectfully requested. Claims 123 and 124 dependent from Claim 8 have also been added to further clarify that which the Applicant regards as the invention. Support for the new claim is explained in Appendix A. No new matter has been added.

The rejection of Claim 23 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. It is respectfully noted that the embodiment in Applicants specification showing a fixed guide having a bore therethrough need not be considered part of the liner or liner stub. Instead, the fixed guide shown in Figures 4 and 10, shown positioned at the entrance of the branch borehole, diverts the liner stub into the branch borehole, and has a bore through it. Reconsideration of the rejection of Claim 23 is respectfully requested.

Independent Claim 28 has been amended to clarify that which the Applicant regards as the invention, not to overcome any cited references. More particularly, Claim 28 has been amended to clarify that at least a section of said first portion of said tubular member is "removed" and to delete the unnecessary language specifically relating to "including an opening therethrough." Amended claim 28 is now similar in scope to method Claim 8. Likewise, dependent Claim 29 is now similar in scope to dependent method Claim 9, each further specifies that the "tubular member" can be a liner. No new matter has been added by this amendment. Reconsideration of amended independent Claim 28 and the dependent claims therefrom is respectfully requested. In relation to the clarification of the subject matter of Claim 28 and 29, new Claims 129-132 dependent from amended Claim 28 have been added to further clarify that which the Applicant regards as the invention. Support for the claims is explained in detail in Appendix A. No new matter has been added.

Claims 133 and 134, which are dependent from Claim 28, have also been added to further clarify that which the Applicant regards as the invention. Claim 133 specifies that the "removed" section defines "an opening therethrough." Claim 134 dependent on Claim 133 specifies that the tubular member is a liner. Applicant's Claim 133, is supported, for example, by Applicant's specification at column 16, line 8 to column 17, line 27 and by Figure 10, a portion of which is presented in Attachment A with highlights. In Applicant's Figure 10, the well casing has been underreamed and a casing patch inserted and cemented into place (specification column 16, lines 11-16). The casing patch includes telescoping liner 39 which is lowered to extend outside of the primary borehole. The casing patch and telescoped liner, taken together, form the "tubular member" of Claim 133, highlighted in Attachment A, with a first portion inside and a second portion outside the primary borehole. The guides 41 and 42 and collar 35 are drilled out to provide "an opening" through a "section" of the tubular member such that there is communication between an upper and lower region of the primary



borehole. A portion of the drilled out "opening" is highlighted in Applicant's Figure 10 shown in Attachment A. Reconsideration of the subject matter of Claims 133 and 134 is respectfully requested.

The subject matter of dependent Claim 30 (amended to be dependent on Claim 134) is similarly supported, for example, by Figure 10, as explained above. Claim 30 states that "said opening is provided by removing said section." The portions of liner 29 remaining in the casing are drilled, or removed, to create an opening providing communication between an upper and lower region of the borehole (specification column 9, lines 18-19). Thus, the opening *is* the bore of the casing. Reconsideration of Claim 30 is respectfully requested.

Claim 32 has been amended to clarify that which the Applicant regards as the invention. More specifically, Claim 32 has been amended to change "removable plug" to "removable portion", deleting the unnecessary limitation regarding a removable plug in the diverter. As explained and discussed in detail in the Appendix hereto, the amendment to Claim 32 is fully supported by the disclosure of the original patent. Reconsideration of amended Claim 32 is respectfully requested.

The rejection of Claim 35 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. It is respectfully noted that the embodiment in Applicants specification showing a fixed guide having a bore therethrough need not be considered part of the liner or liner stub. Instead, the fixed guide shown in Figures 4 and 10, shown positioned at the entrance of the branch borehole, diverts the liner stub into the branch borehole, and has a bore through it. Reconsideration of Claim 35 is respectfully requested.

The rejection of Claim 36 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. It is clear from the description and drawings in the application that a cementitious slurry is to be delivered between the liner and the primary borehole, at least at the periphery of the opening into the primary borehole. See Figure 3b and Figure 10. Reconsideration of Claim 36 is respectfully requested.

The rejection of Claim 38 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. Claim 38 is supported, for example, by Figure 10 and the description thereof, which discloses a casing patch positioned in a primary borehole, a fixed guide and other cooperative components of the casing patch for diverting a mobile liner stub from the casing patch in the primary borehole, the casing patch having a suitable device including shearing disks at the upper and lower ends of the casing patch closing the primary borehole and for supporting and trapping sealing cement delivered into the primary borehole. After cementing, the devices at the upper and lower end of the casing patch are removed to reopen the primary borehole. Reconsideration of Claim 38 is respectfully requested.

Claims 40, 41, 44, 49, 50, and 51 have been amended to clarify that which the Applicant regards as the invention. More particularly, these claims have been amended to clarify that a secondary borehole tubular member is carried downhole. Support for this amendment is found at Column 9, lines 13-27. Furthermore, Claim 51 was amended to clarify that said "means . . . to orient" is on said guide means and said flange as defined in Claim 50, which is consistent with the specification. No new matter has been added.

Claims 49-52 were rejected under U.S.C. § 112, first paragraph. Based on the clarification of these claims, reconsideration of the rejection of pending Claims 49-52 is respectfully requested.

Claim 56 has been amended to clarify that which the Applicant regards as the invention. More particularly, the unnecessary language relating to "enveloping the tube during run in" has been deleted. Although the claim is now broader, no new matter has been added. Reconsideration of amended Claim 56 is respectfully requested.

The rejection of Claims 77 and 78 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. When the written description expressly states that certain components or aspects of different embodiments may be combined, it is proper to give such language the intended effect. In this case, Applicant described several embodiments, and throughout stated that tubing completion could be accomplished a number of different ways. In the summary of the invention, for example, it states: "Depending upon the mode of exploitation of the well and field conditions, a great variety of tubing completion assemblies may be used." In Case 1, tubing completion is "achieved by making up and running-in a tubing string consisting of dual tubing prongs equipped with chevron seals and connected to the lower ends of an inverted Y nipple joint. The chevron seals constitute the male mating parts of the two polished bore receptacles previously installed." In Case 2 and as described with reference to Figure 2d, tubing completion is accomplished by "tying-in each articulated connector tube to its corresponding intermediate liner." Column 7, lines 2-23. With respect to the embodiment described in Case 3, Figures 3a-c, the written description states that "Well completion is done as in Case 2, except that tie-in of the articulated connector tubes may be obtained with packers, as in Case 2, or with polished bore receptacles, and seals as in Case 1." Regarding Case 4, another tubing completion is described at column 9, lines 28-66. In the alternative, tubing completion for Case 4 can be as described previously with respect to Cases 2 and 3 as described at Column 10, lines 30-33. Regarding the embodiment of Case 4a and Figure 10, the written description states that "the tubing completion assembly equipment and procedures are also the same [as for Case 4]." Column 16, lines 52-53. The written description clearly describes the interchangeability and flexibility of the several described tubing

completion equipment components and procedures. Reconsideration of the rejection of Claims 77 and 78 is respectfully requested.

Claim 117 has been amended to clarify that which the Applicant regards as the invention. More particularly, the unnecessary language relating to "cutting at least a portion of the whipstock" has been deleted. Although the claim is now broader, no new matter has been added. Reconsideration of the rejection of Claim 117 is respectfully requested. Claim 133 dependent from Claim 117 has been added to clarify that the whipstock is removed after installation of the tubular member. This new claim is supported by the application at Column 8, lines 24-25, as explained in more detail in Appendix A. No new matter has been added.

Claim 118 has been canceled without prejudice.

Response to Rejections Under 35 U.S.C. § 112, Second Paragraph

Responsive to the rejection of Claims 16, 19, 25, 26, 49-52, 56, 77, 78, and 84 under 35 U.S.C. § 112, second paragraph, these claims have been amended to correct minor typographical and grammatical errors in the claims to clarify that which the Applicant regards as the invention. In particular:

Claim 16 has been amended to correct the dependency from an inadvertent duplication of Claim 15. Support for this change is found in the Reissue Application Declaration at ¶¶ 12-16, and more particularly at ¶ 16, i.e., the intention to copy claims from U.S. Patent No. 5,520,252.

Claim 19 has been amended to provide antecedent basis for "said sealing step", which is first called out in dependent claim 26. Support for this change is found in the Reissue Application Declaration at ¶¶ 12-16, and more particularly at ¶ 16, i.e., the intention to copy claims from U.S. Patent No. 5,520,252. Claims 19 and 26 herein correspond to Claims 11 and 38, respectively, of McNair '252. According to the file history of McNair '252, the dependency of Claim 11 in the printed '252 Patent is incorrect in that the claim should have been dependent on Claim 38 in the printed '252 Patent. *Compare* McNair '252 to the file history of McNair '252, Paper No. 4½, Preliminary Amendment dated September 22, 1995. Thus, Claim 19 herein should properly depend from Claim 26.

Claims 25 and 26 have been amended to correct the dependency and provide antecedent basis for the word "liner." Support for this change is found in the reissue declaration of the inventor at ¶¶ 12-16, and more particularly at ¶ 16, i.e., the intention to substitute "tubular member" for the word "liner" in new claims 8 and 28 and wherein dependent claims 9 and 29, respectively, further define said "tubular member" as being a "liner," whereby claims 9 and 29 literally correspond to the scope of the independent claims in U.S. Patent No. 5,520,252.

Claim 49 has been amended as described above to clarify that which the Applicant regards as the invention, which also clarifies Claim 50 dependent therefrom.

Claim 51 has been amended as described above to clarify that which the Applicant regards as the invention. More particularly, Claim 51 has been amended to depend directly from independent Claim 40 rather than intervening Claim 49.

Claim 56 has been amended as described above to clarify that which the Applicant regards as the invention.

The rejection of Claims 77 and 78 under 35 U.S.C. § 112, second paragraph, is respectfully traversed, for the same reasons as given above.

Claim 84 has been amended to correct "tubing" to "tubular," for which term there is antecedent basis.

All of these amendments are supported by the Reissue Application Declaration. It is respectfully submitted that these amendments overcome the objections under 35 U.S.C. § 112, second paragraph, to Claims 16, 19, 25, 26, 49-50, 56, 58, 77, 78, and 84.

Response to Rejection of Claims under 35 U.S.C. § 102(e)

Pending Claims 8-14, 16, 18, 19, 21-33, and 35-39 were rejected under 35 U.S.C. § 102(e) as being anticipated by McNair U.S. Patent No. 5,520,252 ("McNair '252"). Applicant has amended certain of these Claims to clarify that which Applicant regards as the invention and added Claims 124-126 dependent therefrom. The subject matter of Claims 8-14, 16, 18, 19, 21-33, 35-39 and 124-126 was substantially copied from McNair '252. Applicant respectfully traverses this ground of rejection of these claims because Applicant is entitled to a corrected filing date of December 30, 1991, as previously requested, such that McNair '252 is not a proper reference against this reissue application.

Claims 40, 41, 44/40, 44/41, 45, 46, 47, 48, 53, 54, and 57 were rejected under 35 U.S.C. § 102(e) as being anticipated by McNair U.S. Patent No. 5,520,252. These claims were substantially copied from U.K. Patent Application No. 2304764A published on March 26, 1997. The priority data on the U.K. Patent Application is identified as U.S. Application Serial No. 60/003,340 dated September 6, 1995, which was continued and prosecuted to U.S. Patent No. 5,787,987 issued August 4, 1998 ("Forsyth '987"). Applicant respectfully traverses this ground of rejection because Applicant is entitled to a corrected filing date of December 30, 1991, as previously requested, such that McNair '252 is not a proper reference against this reissue application.

Pending Claims 58, 59, 60, 63, 64, 65, 66, 67, 68, 72, 73, 74, 77, 78, 79, 80, 82/79, 82/80, 85, 90, 92, 93, 94, 95, 97, 103, 104, 105, 106, 107, 108, 109, 112, 114, 115, and 117 were rejected under 35 U.S.C. § 102(e) as being anticipated by McNair, U.S. Patent No. 5,520,252. These claims were not copied from any reference. Applicant respectfully traverses this ground of rejection because Applicant is entitled to a corrected filing date of December 30, 1991, such that McNair '252 is not a proper reference against this reissue application.

Response to Rejection of Claims under 35 U.S.C. § 103

Claims 42, 43, 55, 68, 69, 75, and 110 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McNair, U.S. Patent No. 5,520,252 in view of one or two of a group of three other cited references (Cunningham et al., '432; Hynes, '616; Karnes, '310; or McCune et al., '893). Applicant respectfully traverses this ground of rejection because Applicant is entitled to a corrected filing date of December 30, such that McNair '252 is not a proper reference against this reissue application. Applicant may overcome a 35 U.S.C. 103 rejection based on a combination of references by showing completion of the invention by applicant prior to the effective date of any of the cited references; Applicant need not antedate the reference with the earliest filing date. MPEP § 715.02.

Response to Objection to Allowable Dependent Claims

Applicant notes with appreciation the allowance of Claims 1-7 and the allowability of dependent Claims 61, 62, 70, 71, 76, 81, 86-89, 91, 96, 98-102, 111, 113, and 116, but that these dependent claims are rejected as being dependent upon a rejected base claim.

Applicant also notes the allowability of dependent Claim 84, but that the claim was rejected under 35 U.S.C. § 112, second paragraph and rejected as being dependent upon a rejected base claim. Claim 84 has been amended to overcome the rejection for lack of antecedent basis.

In the interest of minimizing confusion in claim numbering at this early stage of the prosecution and any needless multiplying of the claims in the application, pending further action on the base claims, Applicant requests that the objection as to the form not necessary to further consideration of the claims be held in abeyance until allowable subject matter is indicated. See 37 C.F.R. 1.111(b).

Response to Objection to Claims

Claims 58, 66, and 79 were objected to for minor informalities. Claims 58 and 66 have been amended to correct a typographical error in spelling of the word "tubular." Claim 79 has been amended to insert "a" to clarify the first instance of the use of the term "lower end."

In addition, Claim 104 has been amended to correct a minor grammatical error in the claim language, but the change does not change the scope of the claim language.

Claims Copied from U.S. Patent No. 5,787,987

Claims 175, 176, and 177 in this reissue application were copied from Claims 21, 22, and 23 of U.S. Patent No. 5,787,987 issued August 4, 1998 (Forsyth '987). The priority data of Forsyth '987 is identified as U.S. Application Serial No. 60/003,340 dated September 6, 1997, which is the same priority application for the U.K. Patent Application No. 2304764A published on March 26, 1997. See Reissue Application Declaration at ¶ 17 and Paragraph 20.

Supplemental Reissue Oath/Declaration

Responsive to the Office Action mailed April 27, 1998, Applicant submits a new, supplemental reissue declaration herewith in compliance with 37 C.F.R. 1.67(a), which identifies the citizenship of the inventor in the opening paragraph.

A few sentences were adjusted to accommodate the fact that the supplemental reissue declaration is being filed after the time of filing the reissue application. Paragraphs 7-8 were clarified to reflect that the dates of February 21, 1992; November 23, 1992; and January 4, 1993 were the dates of receipt by the Patent and Trademark Office as evidenced by the prosecution history of the original patent.

In addition, the first Declaration in Paragraph 15 included a minor discrepancy in the last sentence of the paragraph stating that certain claims were copies "respectively" of certain claims of the McNair '252 patent. All claims 8-39 first presented in this reissue application were copied from McNair '252, but certain claims in this reissue application were renumbered relative to the order in McNair '252 so that in the dependent claims would be properly grouped together with the claim or claims to which they refer in compliance with MPEP § 608.01(m).

Furthermore, the first reissue Declaration in Paragraph 17 erroneously indicated the priority date "6/9/95" of the U.K. Patent Application to be "June 9, 1995," based on an error in using the U.S. date convention

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"M/D/Y" instead of the European date convention "D/M/Y." The correct date of "September 6, 1995" for the date of the U.K. Patent application has been indicated in the supplemental reissue Declaration.

The supplemental Declaration includes additional Paragraphs referring to the amendments to the claims contemplated by this Amendment A and the statement that all errors being corrected, which were not covered by the original declaration, arose without deceptive intent. See 37 C.F.R. § 1.175.

Conclusion

Based on the foregoing, a favorable Office Action is requested. If an interview with the Examiner would expedite the prosecution of this reissue application, the undersigned can be reached at the telephone number given below, and the undersigned would also be available to meet with the Examiner.

DATE: October 21, 1998

**CERTIFICATE OF MAILING BY "EXPRESS MAIL"**

**"EXPRESS MAIL" MAILING LABEL NO. EF847811547US**

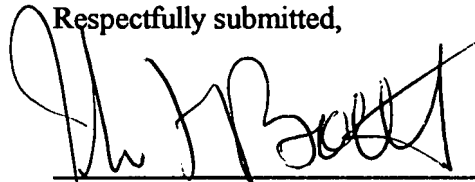
**DATE OF DEPOSIT: October 21, 1998**

**I HEREBY CERTIFY THAT THE ENCLOSED PAPER OR FEE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE "EXPRESS MAIL POST OFFICE TO ADDRESSEE" SERVICE UNDER 37 CFR 1.10 ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C.**

Rosemary Hester  
**Printed Name of Person Mailing Paper or Fee**

Rosemary Hester  
**Signature of Person Mailing Paper or Fee**

Respectfully submitted,



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Todd E. Albanesi, Reg. 36,426

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Attorneys for Applicant

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. patent No. 5,462,120

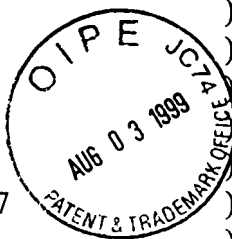
Inventor: Michel Gondouin

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS  
AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED  
MULTIPLE DRAINHOLES

Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231



Group Art Unit: 3625

Examiner: Dang, H.

#8B1  
E. H. H. H.  
12/14/99

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AMENDMENT B

Please amend the above-identified application as follows:

IN THE CLAIMS:

Please add claims 198-204 as follows:

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DEPUTY A/C PATENTS

~~198. A lateral seal and control system comprising:~~

- ~~a) a first borehole having a first window therein, said window having a periphery;~~
- ~~b) a second borehole extending from said first borehole coextensive with said window;~~
- ~~c) a housing having a premachined window, the premachined window being orientable with said first window;~~
- ~~d) a production pipe including a flange at an uphole end thereof, said flange being of~~

~~larger dimension than said premachined window; said pipe being maintained substantially within~~

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390.00 OP

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06-CL-102

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18



Sub 15

said housing during run in and being movable from the run in position to a deployed position wherein said flange is mated against said periphery of said premachined window.

199. A lateral seal and control system comprising:

a) a first borehole having a first window therein, said window having a periphery;

b) a second borehole extending from said first borehole coextensive with said window;

c) a housing having a premachined window, the premachined window being orientable with said first window;

d) a production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; said pipe being maintained substantially within said housing during run in and being movable from the run in position to a deployed position wherein said flange is mated and energized against said periphery of said premachined window to seal said flange with said periphery of said premachined window.

B1

200. A method of sealing the intersection between a first borehole having a first window therein, said window having a periphery, and a second borehole extending from said first borehole coextensive with said window, comprising the steps of:

running into the first borehole a housing and production pipe assembly, said housing having a window and said production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said production pipe substantially within said housing during run in;  
and

SUBD

aligning said window of said housing with said first window and moving said production pipe from the run in position to a deployed position wherein said flange is mated against said periphery of said window.

201. A method of sealing the intersection between a first borehole having a first window therein, said window having a periphery, and a second borehole extending from said first borehole coextensive with said window, comprising the steps of:

running into the first borehole a housing and production pipe assembly, said housing having a window and said production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said production pipe substantially within said housing during run in;

aligning said window of said housing with said first window and moving said production pipe from the run in position to a deployed position wherein said flange is mated against said periphery of said window; and

urging said flange against a periphery of said premachined window to seal said flange with said periphery of said premachined window.

202. The lateral seal and control system as in claim 198 wherein said flange includes an elastomeric sealing element.

203. A method of claim 200 wherein said flange includes an elastomeric sealing element.

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202-408-4000

53bD6 204. A method for sealing the junction between a branch wellbore and a parent

wellbore comprising:

a) drilling a parent wellbore;

b) drilling a window and branch wellbore by placing a deflecting tool in the parent

wellbore and running a drill string from the parent wellbore;

c) removing the deflecting tool;

d) running a production tube having a flange at the uphole end thereof;

e) kicking said production tube into the branch wellbore and urging the same downhole until said flange is in sealed contact with a periphery of said window.

## REMARKS

Through this Amendment B, Reissue Applicant Michel Gondouin has presented claims that substantially correspond to claims 4,5,6, 7, 19, and 27 from U.S. Patent No. 5,787,987 (the '987 patent) and that would support the declaration of an interference between Applicant's claims and these patent claims. Specifically, claims 198 and 200 correspond to claim 4 of the '987 patent. Claim 198 is in apparatus format, while claim 200 is in method format. In addition, claims 199 and 201 correspond to claims 5-7 of the '987 patent. Claim 199 is in apparatus format, while claim 201 is in method format. Claims 202 and 203 correspond to claim 19, and claim 204 corresponds to claim 27. Applicant previously copied claims 21, 22, and 23 of the '987 patent in Amendment A, filed on October 21, 1998.

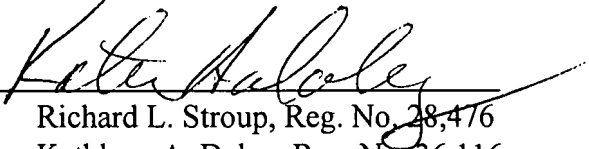
Applicant understands that prosecution of this application has been suspended pending resolution of Applicant's request for reconsideration regarding Applicant's request for restoration of the original filing date. This amendment is submitted at this time to ensure compliance with 35 U.S.C. § 135(b). The '987 patent issued on August 4, 1998. Applicant reserves the right to file a formal request for interference with the '987 patent once Applicant's request for restoration of the original filing date has been decided and the suspension of prosecution has been lifted.

The Commissioner is hereby authorized to charge any necessary fees associated with this filing to Deposit Account 06-0916. If a fee is required for an extension of time not accounted for, Applicant petitions for such an extension and requests that the extension fee also be charged to our Deposit Account 06-0916.

Respectfully submitted,

Date: August 3, 1999

By:

  
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SK



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/861,457

05/22/97

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HAL16-17267

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PM92/0418

EXAMINER

DANG, H

ART UNIT

PAPER NUMBER

3672

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DATE MAILED:

04/18/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**08/861,457**

Applicant(s)

**Gondouin**

Examiner

**Hoang C. Dang**

Group Art Unit

**3672**



☒ Responsive to communication(s) filed on Mar 7, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

175-177 and 198-212

☒ Claim(s) 1-16, 18, 19, 21-29, 31-33, 35-39, 120, 123, 124, 126-128, 175-177 and 198-212 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-16, 18, 19, 21-29, 31-33, 35-39, 120, 123, 124, 126-128, 175-177 and 198-212 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Mar 7, 2000 is ☒ Approved ☐ Disapproved.

☒ The specification is objected to by the Examiner.

☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 12 & 21

☒ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 3672

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Oath/Declaration***

2. In accordance with 37 CFR 1.175(b)(1), a supplemental reissue oath/declaration under 37 CFR 1.175(b)(1) must be received before this reissue application can be allowed.

Claims 1-16, 18, 19, 21-29, 31-33, 35-39, 120, 123, 124, 126-128, 175-177 and 198-212 are rejected as being based upon a defective declaration under 35 U.S.C. 251. See 37 CFR 1.175. The nature of the defect is set forth above.

Receipt of an appropriate supplemental oath/declaration under 37 CFR 1.175(b)(1) will overcome this rejection under 35 U.S.C. 251. An example of acceptable language to be used in the supplemental oath/declaration is as follows:

"Every error in the patent which was corrected in the present reissue application, and is not covered by a prior oath/declaration submitted in this application, arose without any deceptive intention on the part of the applicant."

#### ***Claim Rejections - 35 USC § 251***

3. Claims 198, 199, 200, 201, 202, 203, 204, 211 and 212 are rejected under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought. The added material which is not supported by the prior patent is as follows:



Art Unit: 3672

As for claims 198-203, 211 and 212, there are no embodiments in the original disclosure which have all of the limitations as recited in these claims. For example, only the embodiment shown in Figure 4 or 10 meets the limitation of "said pipe being maintained substantially within said housing during run in" or "maintaining said tubular member substantially within said housing during run in" recited in these claims. However, this embodiment does not include a first window having a periphery and a second borehole extending from the first borehole coextensive with the first window. It is noted that the embodiment of Figure 3a that applicant states in the Claim Chart (Appendix G) as having the "flange" as recited in these claims is not "maintained substantially within said housing during run in" as also called for in these claims. The underreamed portion of case cannot properly considered as the "first window" as now recited in these claims because there is not an "opening" that extends through the casing or wellbore's wall. Further, this underreamed portion is not ~~is not~~ coextensive with the second borehole. The diameter of the second borehole is much smaller <sup>than</sup> the thickness of the underreamed portion.

As for claim 204, applicant's original disclosure has no support for steps "c" and "e". Applicant's liner is deflected into the branch borehole by the same deflecting tool that deflects the drill string which previously drilled the window and branch wellbore. In other words, the deflecting tool is not removed as called for in step (c). Further, applicant's liner is guided or deflected into the branch wellbore by the deflecting tool. It is clearly not kicked into the branch wellbore as now claimed in step (e).

Art Unit: 3672

***Claim Rejections - 35 USC § 112***

4. Claims 3, 4/3, 56/3, 23, 35, 198-203, 211 and 212 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 3, 4/3, 56/3, 23, 35, 198-203, 211 and 212 are either directly or indirectly related to telescopic liner stubs shown in Figure 4 or Figure 10. However, it is not seen how the liner stubs shown in Figures 4 and 10 of the drawings can operate as disclosed in the specification or claimed. As shown in these figures, the collar (or flange) and sealing gasket are provided on the upper end of the inner mobile guide 42, not on the liner stub 39. The collar (or flange) and sealing gasket therefore cannot engage with the periphery of the pre-machined window as recited. Further, since the liner stubs 39 are closely fitted between outer fixed tubular cages 41 and inner tubular mobile guides 42, any collar (or flange) and sealing gasket on the upper end of the liner stubs 39 would engage the upper end of the outer fixed cage 41 and prevent further downward movement of the liner stub 39 into contact with the periphery of the windows as recited. Furthermore, the sealing gasket shown in Figure 4 as being on the inner surface end of the collar or flange 35 obviously cannot engage the periphery of the window as recited.

5. Claims 28, 29, 31-33, 35-39, 126-128, 175-177, 209 and 210 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in

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the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As for claims 28, 29, 31-33, 35-39, 126-128 and 209, the recitation “at least a section of said first portion of said tubular member being removed, such that a region in the primary borehole above the tubular member communicates with a region in the primary borehole below the tubular member” in claim 28, lines 4-6 has no support in the originally filed specification and drawings and is considered as new matter. There cannot be found in the original disclosure any support for the now claimed limitation that a section of the first portion of the tubular member is removed such that a region in the primary borehole above the tubular member communicates with a region in the primary borehole below the tubular member. The first portion of applicant’s tubular member or liner never stops or starts communication between the region in the primary borehole above the tubular member and the region in the primary borehole below the tubular member. In other words, in applicant’s system, the primary borehole above the tubular member is always in communication with the region in the primary borehole below the tubular member regardless of the location or state of the first portion of the tubular member or liner.

As for claims 175-177 and 210, the recitation of “installing a tubular member having a premachined window therein such that said premachined window is aligned with

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said branch borehole” in step (a) of claims 175 and 210 has no support in the original disclosure and is considered as new matter. Applicant’s premachined window in the tubular member cannot align with the branch borehole when it is installed as recited because applicant’s branch borehole does not exist when the tubular member is installed.

6. Claims 28, 29, 31-33, 35-39, 126-128 and 209 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation “at least a section of said first portion of said tubular member being removed, such that a region in the primary borehole above the tubular member communicates with a region in the primary borehole below the tubular member” in claim 28, lines 4-6 is inaccurate and misleading. The first portion of applicant’s tubular member or liner never stops or starts communication between the region in the primary borehole above the tubular member and the region in the primary borehole below the tubular member. In other words, in applicant’s system, the primary borehole above the tubular member is always in communication with the region in the primary borehole below the tubular member regardless of the location or state of the first portion of the tubular member or liner.

Contrary to applicant’s argument, the words “such that” clearly indicate that the communication between the region in the primary borehole above the tubular member and

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the region in the primary borehole below the tubular member is the result of the removal of the section of the first portion of the tubular member.

7. It is noted that regarding the submitted Claim Charts, it would be more helpful to the examiner if applicant points out the specific embodiment(s) or case(s) that each of the claims relies on for support and explains the support in the disclosure for the claim with respect only to the particular embodiment(s) or case(s) that the claim relies on. For example, with respect to claim 199 in the Claim Chart, it would be much more easier for the examiner to check for support for the claim if applicant points out which embodiment(s) or case(s) that applicant relies on (e.g., "Figure 4" or "either Figure 4 or Figure 10") to provide support for the claim and how all terms and limitations in claim 199 find support in this embodiment. With further regard to claim 199, although the Claim Chart refers to numerous places in the patent, applicant however still not points out exactly the embodiment that all of the terms and limitations of the claim read on. What parts or elements of this embodiment(s) are respectively considered as the "first borehole", "first window", "periphery", "second borehole", "coextensive with said window", "orientable with said first window" and "said pipe being maintained substantially within said housing during run in" of claim 199. This is only an example. To avoid confusion, please only refer only to embodiment(s) or case(s) that has supports for all limitations in the claim. For instance, since all other embodiments except Figures 4 and 10 cannot meet the limitation of "said pipe being maintained substantially within said

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housing during run in” recited in claim 199, all references not relating to Figures 4 or 10 in the Claim Chart for claim 199 should not be made to avoid confusion.

In other words, applicant should specifically apply each limitation or element of each of the claims to the disclosure of the patent and only to the embodiment(s) that has support for all of the limitations in the claim.

***Claim Rejections - 35 USC § 102***

8. Claims 8, 9, 10, 11, 12, 14, 19, 21, 22, 26, 27, 28, 29, 31, 36, 37, 39, 120, 123, 124, 126, 128, 205, 206 and 207 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Russian document No. 787,611 (see applicant’s English translations filed on Jan 27, 2000 and/or December 28, 1998 and/or the Russian Patent Graphical Presentation of Steps prepared by Harold E. McGowen III).

The Russian reference discloses a method for drilling and completing lateral boreholes connected to a vertical borehole as claimed, comprising: drilling a vertical borehole (1) using diverting means (i.e., “deflecting tools” or “deflectors”) to drill a lateral borehole (2) extending from the vertical borehole (1); placing liner (3) in the lateral borehole (2) so that the uppermost end of the liner protrudes into the vertical borehole (1); cementing the junction of the vertical and lateral boreholes; and removing the protruding part of the liner (2) (i.e., when the main hole 1 is drilled further after the liner 3 has been cemented).

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use of Furan or heat-hardened resin/cement in wellbores as seal is well known in the art as evidenced by Karnes '310 (see column 4, lines 18-27) or Applicant's admitted prior art on page 6, lines 7-9.

10. Claim 110 is rejected under 35 U.S.C. 103(a) as being unpatentable over McNair '252 in view of McCune et al (US 2,797,893).

McNair '252 discloses the invention as claimed except that the window is formed downhole whereas the claim calls for a preformed window. However, it would have been a matter of choice and obvious to provide McNair '252 with a preformed window since it is well known in the lateral well drilling art that the opening or window in the tubular member in the primary wellbore may be preformed at the surface of downhole by a milling tool as evidenced by McCune et al '893 (see column 2, lines 33-43).

***Allowable Subject Matter***

11. Claims 1-7 are allowed.

12. Claims 61, 62, 70, 71, 76, 81, 83, 86-89, 91, 96, 98-102, 111, 113 and 116 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claim 84 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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***Claim Objections***

14. Claims 58, 66 and 79 are objected to because of the following informalities: the word “tubular” in claim 58, lines 10 and 13 and claim 66 line 4 is misspelled. The word --a-- should be inserted before “lower end” in claim 79, line 6. Appropriate correction is required.

***Oath/Declaration***

15. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the citizenship of the inventor.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Hoang Dang, whose telephone number is (703) 308-2149. The examiner can normally be reached on Monday-Friday from 9:15 AM to 5:45 PM.



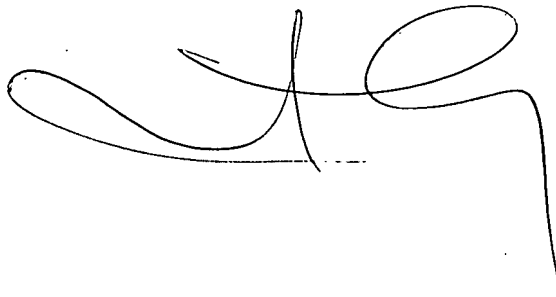
Serial Number: 08/861,457

Page 12

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tamara L. Graysay, can be reached on (703) 308-2144. The fax phone number for this Group is (703) 305-3597.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-2168.

A handwritten signature in black ink, appearing to be 'H. Dang', with a large loop and a long horizontal stroke.

**HOANG C. DANG  
PRIMARY EXAMINER  
ART UNIT 3625**

H. Dang/hcd  
04/20/1998  
81861457.1ST

# Interview Summary

Application No.  
**08/861,457**

Applicant(s)  
**Gondouin**

Examiner  
**Hoang C. Dang**

Group Art Unit  
**3672**



All participants (applicant, applicant's representative, PTO personnel):

(1) Hoang C. Dang (3) \_\_\_\_\_

(2) Richard Stroup (4) \_\_\_\_\_

Date of Interview Mar 3, 2000

Type: ☒ Telephonic ☐ Personal (copy is given to ☐ applicant ☐ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☐ was reached. ☐ was not reached.

Claim(s) discussed: None

Identification of prior art discussed:

None

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Applicant was told that Amendment C filed Jan 14, 2000 does not comply with 37 CFR 1.121(b). A revised Amendment C will be hand-carried to the examiner next monday.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

1. ☐ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

**HOANG C. DANG  
PRIMARY EXAMINER  
ART UNIT 3672**

## Interview Summary

Application No.  
**08/861,457**

Applicant(s)  
**Gondouin**

Examiner  
**Hoang C. Dang**

Group Art Unit  
**3672**

All participants (applicant, applicant's representative, PTO personnel):

(1) Hoang C. Dang

(3) \_\_\_\_\_

(2) Richard Stroup

(4) \_\_\_\_\_

Date of Interview Dec 13, 1999

Type: ☐ Telephonic ☒ Personal (copy is given to ☐ applicant ☒ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☐ was reached. ☒ was not reached.

Claim(s) discussed: 13, 19, 28 and 38 and proposed counts 3, 5, 6 and 7

Identification of prior art discussed:

None

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Claim 13: Applicant pointed out that it has support in embodiments of Figures 3a, 4 and 10. However, the examiner's view is that figures 4 and 10 do not provide support for this claim because Figures 4 and 10 involve a liner stub, not liner as called for in intervening claim 9.

It appears that Figure 10 provides support for claim 19.

Claims 28, the examiner's view is that the "such that" phrase at the end of the claim appears to be misleading since the portions of the primary wellbore above and below the tubular member are always in communication.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

1. ☐ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

**HOANG C. DANG**  
**PRIMARY EXAMINER**  
**ART UNIT 3672**

Art Unit: 3672

Continuation of the Interview Summary:

It appears that claim 38 has support in column 7, lines 60-63.

Proposed Counts 3 and 5: It appears that they have support in the patent.

Proposed Count 6: - It appears that there is no support for the limitation that a seal is formed between the flange of the liner and the window by fluid pressure applied to the interior of the casing.

Proposed Count 7: - There is no window in the primary wellbore for the window in the housing and production pipe assembly to align as recited in the last step. The underreamed annular portion is not a window. It appears that the "production pipe" has no support in the patent.

Applicant pointed out that an amendment C will be filled soon.

## **APPENDIX B**

### **PROPOSED INTERFERENCE COUNTS**

#### **I. Proposed Count 1**

A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

#### **II. Proposed Count 2**

A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

drilling said branch borehole;

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

#### **III. Proposed Count 3**

A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole;

delivering a cementitious slurry at the juncture between said tubular member and said primary borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

#### **IV. Proposed Count 4**

A method of sealing the intersection between a primary borehole having a casing and a branch borehole, comprising the steps of:

forming an opening in said casing at the site of the intersection between said primary borehole and a branch borehole to be formed, said opening being formed in said casing either prior to or subsequent to installation of said casing in said primary borehole;

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and thereby blocks said primary borehole and wherein a second portion of said tubular member resides in said branch borehole;

delivering a cementitious slurry at the juncture between said tubular member and said primary borehole; and

removing at least a section of said first portion of said tubular member to reopen said blocked primary borehole.

#### **V. Proposed Count 5**

A method of sealing the intersection between a primary borehole and a branch borehole, comprising the steps of:

installing a tubular member at the intersection of said primary and branch boreholes wherein a first portion of said tubular member resides in said primary borehole and yet permits communication of a region in the primary borehole above the tubular member with region in the primary borehole below the tubular member and wherein a second portion of said tubular member resides in said branch borehole; and

removing at least a section of said first portion of said tubular member and at least a part of said diverter to open said primary borehole;

wherein said step of installing said tubular member includes the steps of

positioning a diverter at the entrance to said branch borehole, said diverter closing the primary borehole and including a portion for catching sealing material;

diverting said second portion of said tubular member into said branch borehole using said diverter; and

applying sealing material to said intersection.

#### **VII. Proposed Count 6**

A method for sealing the junction between a branch wellbore and a parent wellbore comprising:

(a) installing a tubular member having a premachined window therein such that said premachined window is aligned with said branch borehole;

(b) running through said premachined window a pipe having a flange at an uphole end thereof, said flange being of larger dimension than said premachined window; and

(c) urging said flange against a periphery of said premachined window to seal said flange with said periphery of said premachined window.

#### **VIII. Proposed Count 7**

A method of sealing the intersection between a first borehole having a first window therein, said window having a periphery, and a second borehole extending from said first borehole coextensive with said window, comprising the steps of:

running into the first borehole a housing and production pipe assembly, said housing having a window and said production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said production pipe substantially within said housing during run in; and

aligning said window of said housing with said first window and moving said production pipe from the run in position to a deployed position wherein said flange is mated against said periphery of said window.

#### **VIII. Proposed Count 8**

A method of sealing the intersection between a first borehole having a first window therein, said window having a periphery, and a second borehole extending from said first borehole coextensive with said window, comprising the steps of:

running into the first borehole a housing and production pipe assembly, said housing having a window and said production pipe including a flange at an uphole end thereof, said flange being of larger dimension than said window;

maintaining said production pipe substantially within said housing during run in;

aligning said window of said housing with said first window and moving said production pipe from the run in position to a deployed position wherein said flange is mated against said periphery of said window; and

urging said flange against a periphery of said premachined window to seal said flange with said periphery of said premachined window.



**Notice of References Cited**Application No.  
**08/861,457**Applicant(s)  
**Gondouin**Examiner  
**Hoang C. Dang**Group Art Unit  
**3625**

Page 1 of 1

**U.S. PATENT DOCUMENTS**

	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	5,520,252	5/1996	McNair	166	313
B	5,044,432	9/1991	Cunningham et al.	166	206
C	5,193,616	3/1993	Hynes	166	208
D	3,826,310	7/1974	Karnes	166	276
E	5,311,936	5/1994	McNair et al.	166	50
F	698,020	4/1902	Huffman	166	50
G	3,312,284	4/1967	D'Audiffret et al.	166	50
H					
I					
J					
K					
L					
M					

**FOREIGN PATENT DOCUMENTS**

	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						

**NON-PATENT DOCUMENTS**

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
U		
V		
W		
X		

**Notice of References Cited**Application No.  
**08/861,457**Applicant(s)  
**Gondouin**Examiner  
**Hoang C. Dang**Group Art Unit  
**3672**

Page 1 of 1

**U.S. PATENT DOCUMENTS**

	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A					
B					
C					
D					
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F					
G					
H					
I					
J					
K					
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M					

**FOREIGN PATENT DOCUMENTS**

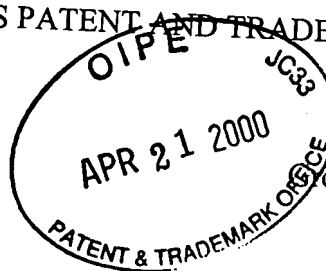
	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N	3,832,715	3/1990	Germany	Kerekes	166	50
O						
P						
Q						
R						
S						
T						

**NON-PATENT DOCUMENTS**

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
U		
V		
W		
X		

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. Patent No. 5,462,120



Group Art Unit 3625

#26

Inventor: Michel Gondouin

Examiner: H. Dang

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS AND ASSEMBLY  
PROCEDURES FOR THE DRILLING, TIE-IN AND COMPLETION OF  
VERTICAL CASED OIL WELLS CONNECTED TO LINER-  
EQUIPPED MULTIPLE DRAINHOLES

PROTEST PURSUANT TO 37 CFR § 1.291

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I. INTRODUCTION

This is a Protest being submitted under 37 CFR 1.291 with regard to the above-referenced application (hereafter "the '457 application"). This Protest is being timely submitted prior to the mailing of a notice of allowance under § 1.311 and is being served upon the applicant in accordance with 37 CFR 1.248.

This Protest is being filed because it is believed that at least independent claims 8, 58, 104 and 105 (as well as the claims which depend therefrom) and any other claims corresponding to claims issued in McNair et al patent 5,520,252 (including claims 9-32 and 119-134) are not patentable by reason of the references attached hereto and discussed below.

*Noted  
9/11/01  
See Ex's Comment  
attached to Appl # 37.*

*RECEIVED  
APR 11 2000  
GROUP 3625*

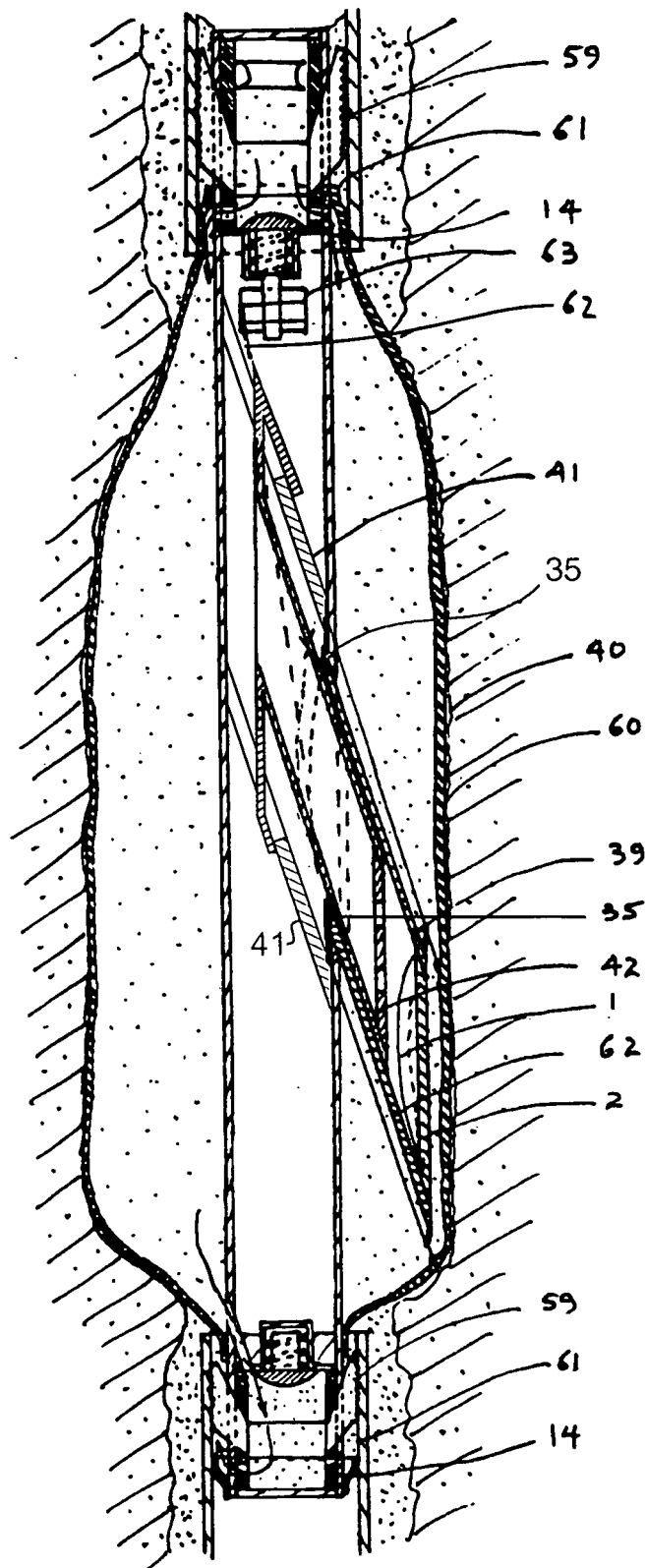
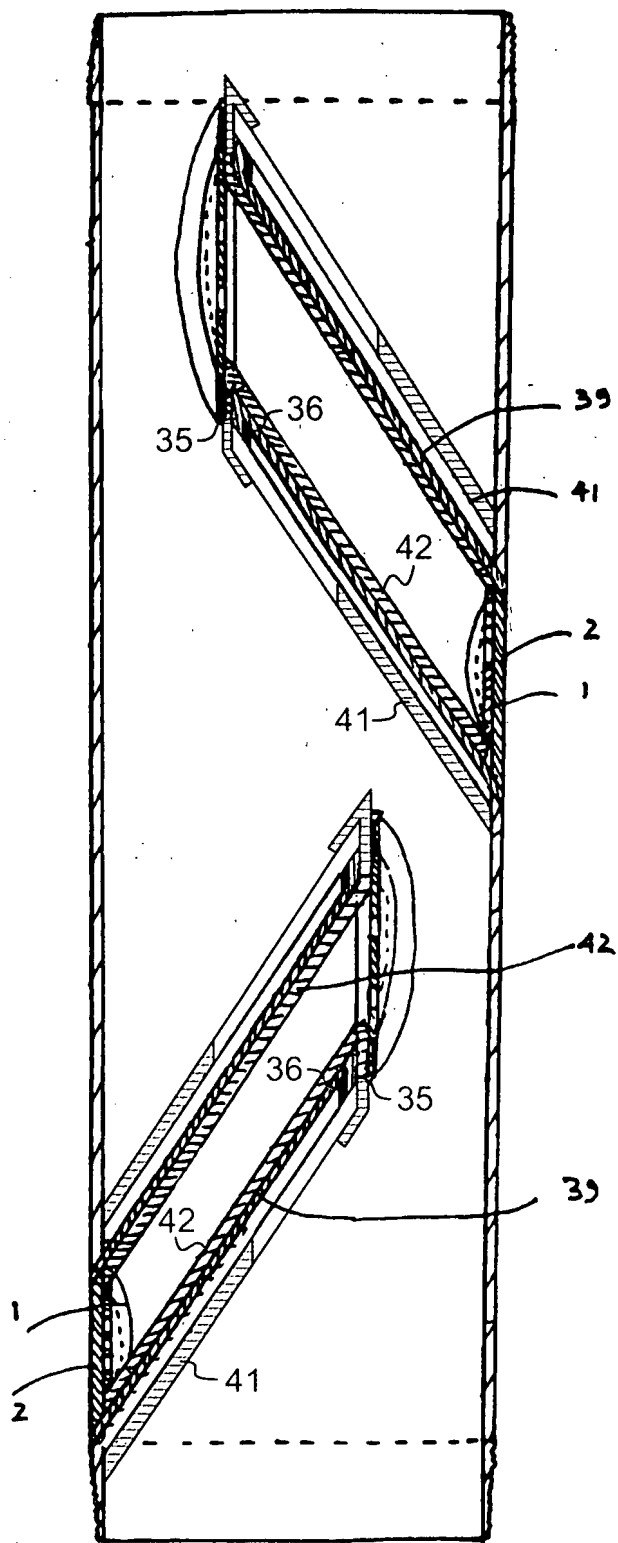


FIG. 10

Copy Filed  
Dated 10-10-50



**FIG. 4**

*Good  
Dated 1/1/2011*

## Interview Summary

Application No.  
**08/861,457**

Applicant(s)  
**Gondouin**

Examiner  
**Hoang C. Dang**

Group Art Unit  
**3672**

All participants (applicant, applicant's representative, PTO personnel):

(1) Hoang C. Dang

(3) \_\_\_\_\_

(2) Kathleen Daley

(4) \_\_\_\_\_

Date of Interview Feb 7, 2001

Type: ☐ Telephonic ☒ Personal (copy is given to ☐ applicant ☒ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☒ was reached. ☐ was not reached.

Claim(s) discussed: 217, 221, 239, and 248

Identification of prior art discussed:

None

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:

It was agreed that the proposed drawing corrections to Figures 4 and 10 in the attached sheets have support in the original disclosure, e.g., column 8, lines 54-67, column 9, lines 1-3 and Figure 3a, column 7, line 67 through column 8, line 11; Figure 10; column 16, lines 17-44. Applicant will correct the drawings as agreed and will submit a supplemental amendment to correct 35 USC 112 matter in claims 217, 221, 239 and 248. The words "such as" will be avoided in claims 217, 239 and 248. The words "tubular member" in claim 221 will be changed to --liner--.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

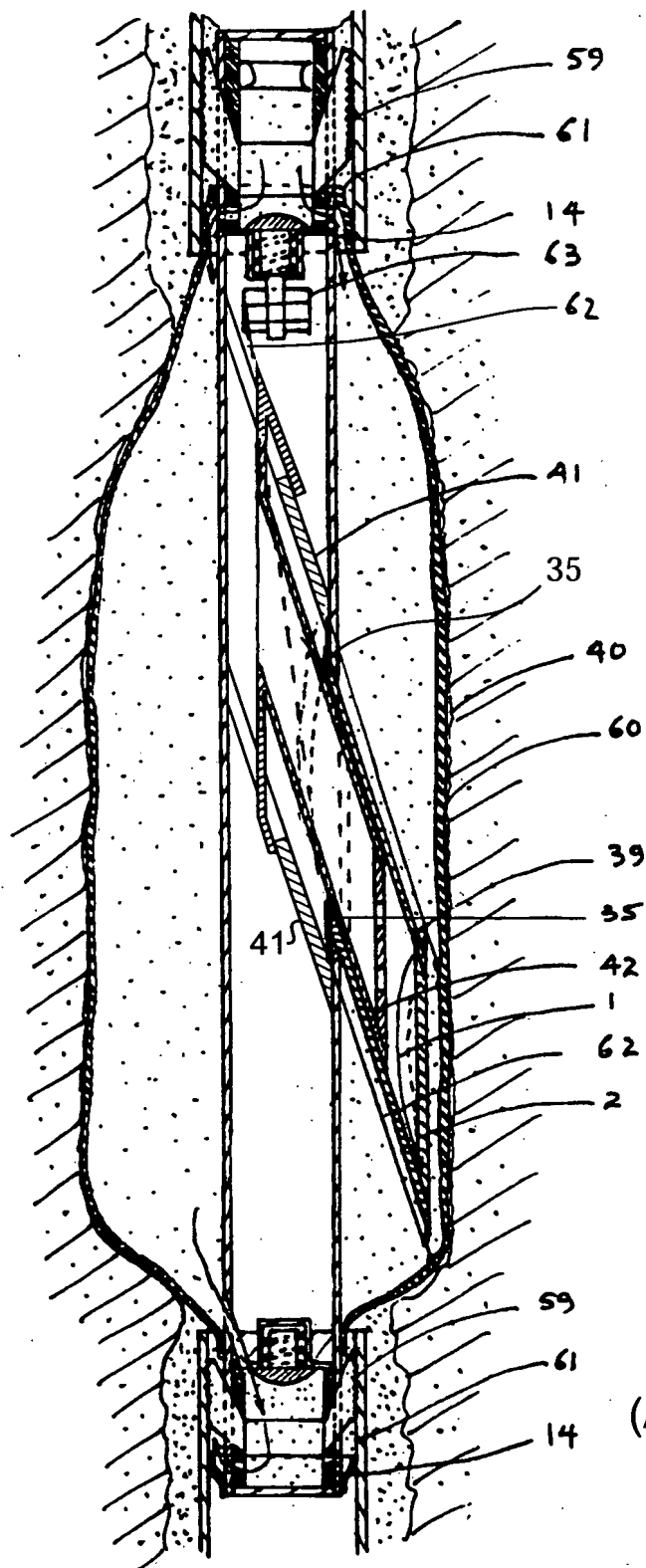
1. ☐ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

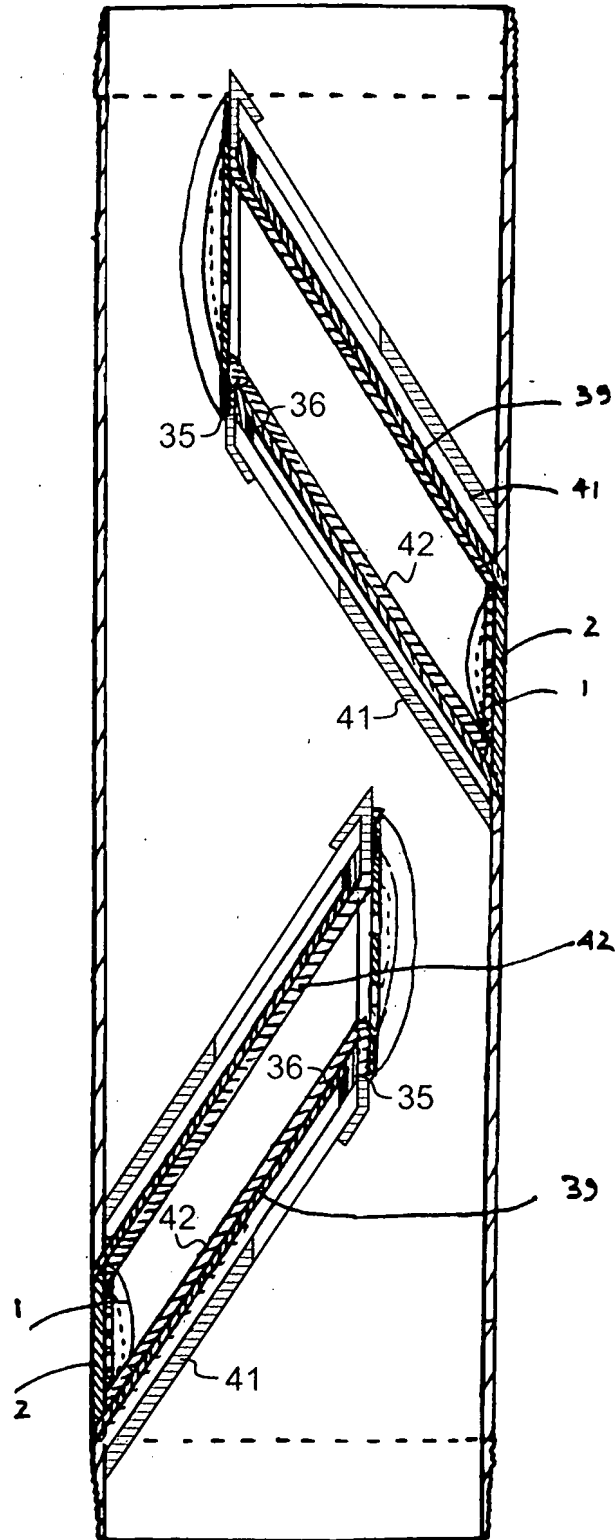
2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

**HOANG C. DANG**  
**PRIMARY EXAMINER**  
**ART UNIT 3672**



**FIG. 10**  
(Amended)



**FIG. 4**  
(Amended)



Respectfully submitted,



Richard L. Stroup, Reg. No. 28,476  
Kathleen A. Daley, Reg. No. 36,116  
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Date: February 14, 2001

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& DUNNER, L.L.P.  
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WASHINGTON, DC 20005  
202-408-4000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application for Reissue  
of U.S. Patent No. 5,462,120

Inventor: Michel Gondouin

Application Serial No.: 08/861,457

Reissue Filing Date: May 22, 1997

Title: DOWNHOLE EQUIPMENT, TOOLS AND ASSEMBLY PROCEDURES FOR THE  
DRILLING, TIE-IN AND COMPLETION OF VERTICAL CASED OIL WELLS  
CONNECTED TO LINER-EQUIPPED MULTIPLE DRAINHOLES

Honorable Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

Sir:

**REQUEST FOR APPROVAL OF DRAWING CHANGE**

Pursuant to 37 CFR § 1.121, Applicant requests approval of the attached drawing changes. Applicant has submitted these changes by way of a new sheet of drawings with Figs. 4 and 10 identified as amended. 37 C.F.R. § 1.121(b)(3)(i). Moreover, these drawings constitute a sketch in permanent ink and the proposed changes are shown in red. 37 CFR § 1.121(b)(3)(ii). Upon receiving approval of these drawings, Applicant will submit formal drawings.



Group Art Unit: 3625

Examiner: H. Dang

*Approved  
3/10/2001*

# Interview Summary

Application No. <b>08/861,457</b>	Applicant(s) <b>Gondouin</b>	
Examiner <b>Hoang C. Dang</b>	Group Art Unit <b>3672</b>	

Participants (applicant, applicant's representative, PTO personnel):

Hoang C. Dang (3) \_\_\_\_\_

Athleen Daley (4) \_\_\_\_\_

Date of Interview Oct 11, 2000

Type: ☐ Telephonic ☒ Personal (copy is given to ☐ applicant ☒ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☒ was reached. ☐ was not reached.

Claim(s) discussed: 25 and 127

Identification of prior art discussed:

None

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:

It was agreed that claims 25 and 127 are allowable over the art of record. The upper end of the liner of the Russian reference does not extend through the opening in the casing since in the Russian reference the casing is installed after the upper end of the liner has been drilled out. Applicant will submit claim 25 in independent form and claims dependent therefrom or claims having substantially same limitations as that of claim 25. The other claims will be cancelled to put the application in condition for allowance. The other issues in this application will be presented in continuation applications.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

1. ☐ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

**HOANG C. DANG**  
**PRIMARY EXAMINER**  
**ART UNIT 3672**